

KOLAR GOLD MINES

A short history of gold mining and its socio-economic impact

Dr. M. VENKATASWAMY

English translation of the author's book in Kannada

Kolara Chinnada Ganigalu by

Dr. H.S.M. Prakash



Geological Society of India
Bengaluru

2017

Kolar Gold Mines

**A Short History of Gold Mining and
its Socio-economic Impact**

Dr. M. Venkataswamy

English translation of the author's thesis in Kannada
'Kolar Chinnada Ganigalu'

by

Dr. H.S.M. Prakash



**GEOLOGICAL SOCIETY OF INDIA
BENGALURU**

2017

**Kolar Gold Mines – A Short History of Gold Mining
and its Socio-economic Impact**

by Dr. M. Venkatswamy

English translation of the author's thesis in Kannada
'*Kolara Chinnada Ganigalu*'

by Dr. H.S.M. Prakash

Published by the Geological Society of India,

No.63, 12th Cross, Gavipuram, Bengaluru - 560 019

Pages: xx+178

Price: Rs. 500

ISBN: 978-93-80998-33-6

Copyright 2017, Geological Society of India

Printed by Offset Process by
M. Nagaraju
Driti Enterprises
#117/19, Cauverynagar Main Road
Cauverynagar, B.S.K. III Stage
Bengaluru - 560 085

This book is dedicated to

The mining workers of five to six generations who toiled with their lives in the dark tunnels of the mines of the KGF to produce the yellow metal.

To my beloved **Prof. G.H. Sawkar**, retired principal, First Grade College, KGF.

To my late parents and my aunt Late **Smt Chinnapapamma** and uncle Late **Sri P. Nagabhusanam** (Revenue Inspector) who brought me up.

Foreword

Gold and other precious minerals have always played an important role in war and peace. Kautilya was aware of their importance as he declared long ago that 'Mines were the very source from which springs all temporal power for the strength of Govt. and the Earth'. There is no change in this perception and the search for minerals and their exploitation continue till all minerals are totally exhausted or substitutes are found. The lure for yellow metal and other industrial minerals led to invasions and colonial occupation of Asia, Africa, Australia and Americas in the wake brought about extensive colonization and exploitation of their natural resources by European countries. This led to division of societies, creation of artificial state boundaries and ruthless exploitation of indigenous people by colonial masters.

In the quest for mineral resources, the focus, however, is mainly on exploration, exploitation and deriving maximum profit. Though, the legitimacy of this cannot be questioned. We cannot overlook or minimise the safety, health, welfare and aspirations of workers who toil in the most difficult conditions for earning a paltry sum, and also the welfare and prosperity of the permanent inhabitants of the land and the impact on the environment of the mineral district. Many times the needs of the workers received secondary importance, with their environment severely damaged, the habitats and heritage of the indigenous people ravaged and their socio-economic conditions suffering upheavals.

In the past, the mine workers faced extreme hardship and neglect which amounted to gross violation of their human rights. Very rarely geologists and mining engineers of foreign and national companies thought it fit to record the hardships and sufferings faced by mine workers. They were never treated as partners in winning the precious metals dispersed in the rocks buried deep in the bowels of the Earth. The workers were always looked upon as tools for exploitation. The people in the lower strata of society, economically weak, socially neglected were recruited from anywhere they were available by force and enticement for doing the rock breaking in great depths and in dark tunnels to recover the shining yellow metal. These companies have their foot prints in most of the continents. The living conditions of mine workers particularly in developing countries call for improvement. Mining on one side provides some livelihood and exposure to laborers who were brought to the site from countryside and it was also intended to create wealth for companies and their officials. At the same time, closer to the mining site, it caused havoc with the health of workers and

caused environmental degradation and misery to indigenous people. In India, the Kolar Gold Mining passed through the same cycle of exploitation and Dr. M. Venkataswamy, formerly a Deputy Director General of the Geological Survey of India, who hails from the KGF, has recorded this history of the Kolar Gold Mines and the socio-economic impact of mining on the people who were engaged in mining in considerable detail. Dr. Venkataswamy, who had his education up to graduate level in KGF, was encouraged by his revered teacher Prof. G.H. Sawkar, Retired Principal of the First Grade College, KGF to record his study in the Kolar Gold Mines area in the form of a D.Lit thesis. That proved a catalyst and finally culminated in the form of a book which is based on his D.Lit thesis in Kannada, which has been ably translated into English by Dr. H.S.M. Prakash, Deputy Director General, Geological Survey of India, an erudite scholar and an able translator.

Every mine has its own developmental history but the Kolar Gold Mines have a unique history among the oldest and also the deepest mines of India and at one time it was the second deepest mine in the world. This has been effectively brought out in the book (Part One). The gold extracted from ancient mines in this area was used by the Harappan women to adorn themselves with a variety of gold ornaments. Gold is also entwined with the cultural more of Indian society. As there was no other known ancient gold mining activity excepting Hutti Gold Mine of Raichur Dist. also in Karnataka, it is attributed that gold from many ancient mines of the KGF and Hutti had reached Harappa.

Dr. Venkataswamy, besides recording the history of the gold mining from the earliest time has made a bold attempt to record the events of socio-economic changes in the lives of the mining workers and their families in his book (Part two) on Kolar Gold Mines. He not only belongs to the land of Kolar Gold Fields but hails from the lineage of workers as his grandfather and uncle had worked in the Bisanattam Gold Mines, in those days without any facility and under harsh conditions that prevailed at that time. He could feel the pulse and pain of the miners whom he was watching going down the shafts and working in the dark tunnels before emerging out beyond the sunset, and pass the night with their families in the cramped one room tenements provided by the mining company. Thus the book is special and authentic because it is penned by a writer who has watched the ebb and flow in the destiny of the gold mines, workers and their families.

The manuscript of the book was submitted to the Geological Society of India sometime in 2011. After a preliminary review it was returned to the author for modification. I have read his book in Kannada titled '*Kolara Chinnada Ganigalu*' and also its English translation and felt the need for some editing, additions and

rearrangement of chapters of the book so as to make it more useful to Society readers and others. Dr. Venkataswamy was not sure how this book would appeal to experts who had made deeper studies in individual aspects of culture, science and socio-economic history of the people. After reading through the manuscript of the book, I am confident it would appeal to a large cross section of readers. This book also captures the mind and heart of the workers who faced difficult working conditions, socio-economic exploitation, and societal prejudices and discrimination. The KGF is today a symbol of great change and Dalit emancipation. It is the fountain head of trade union movement of mine workers, Dalit awakening and a great social movement. Bezwada Wilson, who was born to a Dalit family, hails from KGF and his efforts towards asserting the inalienable right to a life of human dignity and equality fetched him Magsaysay Award 2016.

The Kolar Gold Mines were once the pride of Karnataka and of India for they were the principal source of gold, and the mines represented the marvel of modern mining. It was the second deepest mine in the world. I strongly feel that a portion of the mines with a shaft should be preserved as our heritage gold mine with a museum and an archival library for preserving all the records before these are obliterated by the passage of time and neglect. That will be a fitting memorial to the pioneers who worked in developing the mines and the workers who toiled in harsh conditions and many of them even losing their lives. I am confident this book by Dr. M. Venkataswamy, after its publication, will prove a harbinger for its preservation as a heritage mine, as a tribute to the tenacity of all those workers and mining engineers who made this the greatest mine of India, and for the revival of public interest in exploration of many potential gold-bearing areas in the KGF.

S.V. Srikantia

Vice-President

Geological Society of India

Bengaluru 560 019

Preface

The history of Kolar Gold Mines is a tragic story of many generations of deprived people who struggled under most trying conditions in the dark tunnels of the underground mines for a livelihood. It is also a rare story in the history of India where the oppressed classes of the society fought back incessantly for cultural and social equality. Risking their lives every minute and at every step in the dark hellish underground mines, sweating profusely, searching for the specks of gold for the benefit of mankind. The miners ultimately could not adorn their own families even with a strand of gold till the end of their lives. It is a sad, pitiable aspect of this story that the workers of few generations strived hard inside the mines only for two square meals a day and that was the end of their life's journey for most of them. The way the Britishers behaved with them during the colonial days is a reflection of their racial prejudice towards native Indians.

The Royals and the queens and their ilk descended on the earth with gold spoons in their mouths and immersed themselves in everything golden. The gold extricated from the depths by shedding the sweat of these people has been used for beautifully decorating hundreds of marvelous monuments created by the Kings and Emperors all over the world. Hundreds of wars were waged all over the world in which thousands of lives were lost all for the sake of gold, all for the lure of gold. This brilliantly shining yellow metal has earned the epithet "King of the metals and metal of the Kings". The history of Kolar Gold Mines spreads over a period of 4000 years. Besides, during the colonial and post-colonial periods, for nearly 12 decades from 1880 AD to 2001 AD, what went on silently in this land of black soil is the humble story of the KGF.

It is established through the archeological excavations in the KGF area that gold mining activities have been going on for last 4000 years. Some of the objects which were subjected to radiocarbon dating have indicated that they belong to 5th Century AD. The wooden pieces recovered from Chigaragunta Mines, have yielded an age of 2600 years BP. In Coramandal, Mysore and adjacent Mines several interesting objects such as wooden logs, iron pans, pestles and mortars, stone pillars, grinding stones and pottery among other things were recovered from a depth of 200 to 300 feet. These archaeological articles were displayed in the mines museum near Mysore Mines which is closed now.

John Taylor brought several Britishers, Italians and other Europeans to KGF when he began the modern mining operations in 1880. When the mining activities were on the rise between 1880 and 1900 AD, several Catholics, Protestants, Buddhists and Muslims came to KGF to preach their religions. In addition to them the Shaivites and Vaishnavites brought some Hindu Priests from Tamil Nadu and started worshipping

in their own way. The preachers of all religions succeeded to some extent in converting the migrants and the locals to their respective faiths.

In the year 1902 the Maharaja of Mysore established a hydroelectric project at Shivanasamudram in the Cauvery Valley to supply electricity exclusively to these mines. After 2 years, electricity was transmitted to Bangalore city which became the first city in the country to get electricity. The Shivanasamudram Turbine was established by the General Electric (GE) Company of America who had setup a similar plant at Niagara Falls. It was a great feat during those days to erect poles over 140 kilometers to transmit electricity.

In the year 1864 a broad gauge line was laid between Madras and Bangalore. In 1894 AD, broad gauge line was laid from Bangarpet to KGF over 16 kms. KGF township has achieved maximum literacy in the whole of Kolar district. In 1869, the Kolar district gazetteer was brought out and that was the second one after Mysore district. The KGF hospital which began in 1884, had earned a good name as it was well equipped with modern facilities in those days.

According to an estimate, approximately 7.60 million tonnes of auriferous ore with an average of 3-5gram/tonne are remaining in the mines. Besides this, there are several smaller parallel lodes to Champion Reef and 25 other identified lodes. In addition to this, it is established that gold occurs in Mallappanakonda, Chigaragunta, Yepamana, Bisanattam and other areas. It is estimated that on an average 0.7 to 1.0 gram/tonne of gold is remaining in the nearly 50 million tonnes of tailing dumps which have accumulated over 121 years of gold mining in KGF. But, it is likely to cause further pollution of the surrounding areas which are already affected. Besides adding to the degraded land, it will also affect the health of humans and animals.

So far, no authentic detailed study of the unbiased historical, cultural, scientific, and socio-economic aspects of the world famous KGF has been carried out. The KGF Mines have characteristic unique feature not only in Indian mining industry but also in the world. Thousands of miners have sacrificed their valuable lives to extract nearly 830 tonnes (accounted) of gold from the greenish black rocks from the deep bowels of the earth. The sorrow and suffering and the pain and pleasures of these laborers are not documented anywhere so far. Their toil has contributed to the development of the country in a big way.

The mining activity which began during the colonial period has got a bearing on the lives of the people here and is also responsible for many changes. This area has witnessed many changes in the educational and economic fields, which in turn have an effect on the state. This mining industry was responsible directly or indirectly to the beginning of many industries in the country especially in the pre-independent India during the period of two world wars. This study analyses the effects of the mining industry on the local people, by historical, cultural, scientific, and socio-economic aspects – including their caste system.

Whether the locals were involved in the ancient gold mining in KGF? Or did

they come from outside? This question has remained a mystery even today. There are indications that gold from here reached the Harappa Mohenjo-Daro and Egyptian civilizations. Besides this, did KGF have trade relation with other parts of the world and if so, during which period? It is attempted to analyze the historical development of gold mining during its modern 121 years of records and the cultural ramifications of the 6-7 generations of mining workers. New light has been thrown on colonial and post-colonial impacts, development of mining after the arrival of Britishers and overall analysis of India's development.

Much before getting involved in this study, I was interested in this topic and I had several materials in my collection which were helpful in preparing this Thesis. Firstly, all relevant materials and information pertaining to gold mines were collected from social workers, miners, writers and intellectuals who had connection with the mines. I also collected valuable information from the Libraries of Mining company, Bangalore University, Mythic Society, ISEC, IISc, KAC, British Library and other sources.

Several documents were collected from some workers in KGF, Anglo Indians and local papers. The mines library was in a dilapidated condition as the mines were closed by then and with the help of some friends, with lot of difficulty, I could retrieve information from valuable books which were soaked in moisture or dust laden racks. Probably, these books would not have attained this status if the Britishers were around! It is painful to learn that the mines administration did not make any arrangement for the preservation of these valuable documents. One specialty about libraries of England is that if you request for any information they would happily send some material they possess. Among the one sent by them is the report by P.Bosworth Smith. Except the book entitled 'Rajara Loha, Lohagala Raja' by T.R.Anantharamu in Kannada, I did not get any other book in Kannada. The other good works are 'Kolar Thangavayal Varalaru' in Tamil by K.S.Seetharaman (Ex-Surveyor, BGML) and 'Miners and Mill Hands - Work, culture and politics in Princely Mysore' by Janaki Nair (Sociologist). After collecting all the information, I faced another problem as to how to synthesize and collate all the data. One question always arises in my mind is that, is there any benefit to the society by doing research work and getting Doctorates? After publishing it, will anybody purchase it and read? Nobody bothers about it.

My teacher, Prof. G.H.Sawkar, had asked me once to write a book on KGF. I was filled with the thought that why such an idea had not come to me earlier. As the gold mines started to fill in my mind gradually, the desire for writing a book on them also grew in me. If a book on the joys and tribulations of thousands of workers of the gold mines and also the tradition of gold mines in Karnataka, brought out, it will reach the readers and with this very idea this thesis took initiation.

There were predominantly historical, cultural, scientific, socio-economic aspects in the source material collected. As all of them appeared to be inter-mixed with each

other, it was not possible to separate them out into different chapters. But, without compromising on any of the aspects, it is felt that all the items are provided to the readers within two cover pages. On any one of the above aspects, a separate thesis can be prepared. So much of material is buried in the gold mines. But, it would speak of only one aspect of the mines. I have made an honest attempt to present a holistic view of the mines.

My special thanks are due to Dr. H.S.M. Prakash, my colleague, for the excellent English translation of the book in Kannada titled '*Kolara Chinnada Ganigalu*' without losing any details of the original work. Being a geologist himself, he could do it effortlessly. Prakash had already translated number of Kannada books into English on various subjects in literature.

Acknowledgements

I am profusely thankful to Sri.S.V. Srikantia, (retired Director, GSI), Vice-President, Geological Society of India, a popular and renowned geologist of the country who has taken so much pains to edit this book very seriously. The suggestions he gave for improved presentation of this book has imparted a better look and clarity. The chapters were rearranged and at places text was abridged with some additional information added in this English version.

I also thank to Sri.R.H. Sawkar, Secretary, Geological Society of India and a popular and able geologist of the country who encouraged me to submit the book for publication. Thanks are also due to Prof. B. Mahabaleswar, Editor, Geological Society of India and Dr. K.S. Godhavar, another Secretary of the Society and Sri N. Rajendran, (retired Director, GSI). Thanks are also due to Sri Nasee Ahmed, Ex Minister, Govt. of Karnataka, Sri S.N. Nagaraju (Retd. Deputy Commissioner), Prof. J. Pratap Singh, Prof. A. Ramareddy, Prof. A.B. Basavaraju, Sri M.R. Narayan (all from FGC, KGF); Sri Mahadeva Swamy, Sri A. Sundaramoorthy and Sri R. Panduranga (all from GSI) and also to Dr. G. Ramakrishna (G.R) and Jaraganahalli Shivashankar.

Sincere thanks to my friends Prof. C. Venkatesh (Hampi Kannada University), Sri N. Prakash and V. Prasad Babu (KGF). Many people have helped me in this task and I offer my heartfelt thanks to all of them with all my love and humility and finally I thank my lovely wife Smt. Susheela Swamy and my son Kranthi, M.V., who is presently in Europe, for their unstinted support and encouragement.

I am thankful to Mrs. Bridget White Kumar and Jaganath Prakash who gave some pictures and also to the authors of the Centenary Souvenir of BGML, 1980.

Dr. M. Venkataswamy

1-7-2017

Bangalore - 560 111

Email: alemarimvs@gmail.com

Translator's words

Probably, it required a scientist and a writer like Dr. M. Venkataswamy, who hails from Kolar Gold Fields, to work on such a broad subject like this one wherein, several intertwined aspects of the ascent and decline of the prosperity of a mining town are collected in a very presentable way so that all students of history, economics, sociology, political science, culture and geology can travel back in time and look into very intricate and sensitive issues of the Pre- and Post-Independent India.

There is a maxim in geological and mining parlance that 'all Mines have nine lives' (not to be compared with cats), which literally applies to KGF as it has seen several phases of mining activity and the present closure is one of them and not the ultimate one. Having seen the struggle of workers, their joys, pleasures and pains, trials and tribulations from a very close quarter and angle, being a part of the story of the saga of the mining activity in KGF, Dr. M. Venkataswamy must have felt a strong urge and need to put all related aspects between two covers so that, before the nature ravages all evidences of such a colossal phenomenon called KGF and before the memory of KGF fades into oblivion and before all interesting precious documents of mining are eaten up by moths, ants and silver fish, a valuable, readable reference book is brought out.

My association with Gold exploration in GSI on various Gold Fields of Karnataka and Andhra Pradesh and my stay in Ramagiri Gold Fields and Ajjanahalli Gold Fields and my visits to KGF and Hutti Gold Fields have made my grasping of the emotional aspects of the miners and the masters easy and thus my humble attempt at translating this work into English has been effortless and all the kudos should go to Dr. M. Venkataswamy for his original, painstaking work of much importance in the coming days.

Gold has been several things to several people and it is one important thing in all lives. Probably, there is no human being (and also gods) who is not lured by the glitter of gold. At the same time, its extrication from the dark, deep bowels of the earth is a gory tale. It is a challenging task to the geologists to discover a new gold deposit, equally challenging to the mining engineer to exploit it from deep mines and for the famished workers to bring it to the surface. Also, gold has taken mankind to incredible depths when the possessors of gold are attacked and wars are waged for plundering gold and other forms of wealth in the past, present and possibly in future.

Probably, one such lure for gold attracted the Britishers to Kolar, which gradually led them to more adventurous activity to colonize India and to plunder its wealth. We might have lost 840 tonnes of gold to the Britishers. Kolar Gold Fields are considered, all over the world, to be a classic gold deposit (more than 1000 tonnes of metal endowment) and a classical example of gold metallogeny. On the same lines, it is not an exaggeration to say that this study is a classical one in more than one discipline and in more than one definition.

It is with the fond hope that this book by Dr. M. Venkataswamy becomes a handy reference volume for the new gold mining companies all over the world, if not for the technical aspects, for the intrinsic and extrinsic aspects of gold mining and of the toiling miners.

My sincere thanks are due to my caring senior colleague and well wisher Sri S.V. Srikantia, Vice President, Geological Society of India for his kind suggestions in improvising the original manuscript of Kannada into English version.

Dr. H.S.M. Prakash

1-7-2017

Bangalore - 560 111

E: dr:hsmprakas@rediffmail.com

Contents

PART – I

KOLAR GOLD MINING AND ITS HISTORY

Chapter - 1: Gold during Ancient Time	1-11
KGF Gold in Bible	
Herodotus	
Meghasthanis and Tesias	
Kautilya's Arthashastra	
Alchemy invented in Egypt	
India: A golden land	
KGF gold in Indus civilization	
Tekkala Kote – Bellary District	
Eleven stone edicts of Emperor Ashoka	
Turin Papyrus: World's first mine map	
Suvarnagiri (Maski)	
Chapter - 2: Gold Tradition in Karnataka	13-32
Kannada Naadu Chinnada Beedu	
Medieval Mines	
Hutti Gold Mines: Capt. Leonard Munn and Prof. Alchin	
Carbon Dating	
Geology of Karnataka	
Gold- A glittering metal	
Pilfered/stolen Gold	
Security and Thefts	
Some interesting episodes	
Suicide committed by white officers	
Gold Stock, Currency and Inflation	
Journey into Deepest Levels of KGF Mines	
Ore Processing	

Chapter - 3: History of Kolar Gold Fields **33-48**

Kolar Gold Fields (KGF)
 Lt. John Warren
 Michael Lavelle
 Mervin Smith
 Kolar Concessionaries
 John Taylor- III: Father of Modern Gold Mines
 Little England
 Sir Haji Ismail Saith
 Early Days of Mines
 Early Stages of Mine Planning
 Struggle with Heat
 P. Bosworth Smith (1888-89 AD)
 Mining Companies
 Mysore Reefs Gold Mining Company

Chapter - 4: Decline in the Future of the KGF Company **49-64**

Glory days
 Silicosis, Health Care and Human Rights
 Closure
 Regarding KGF Mining 1956 Nationalization
 Indrenath Stanley (2008): Heart beats of Ministry
 Srikumar's (2014) KGF
 K.S.R. Chari report
 Royalty
 Nationalization
 Last decade (1991-2001)
 Gold production in decades
 Loss in last decades
 Rehabilitations and some plans
 Voluntary retirement's benefits
 Some problems which had remained unsolved

Chapter - 5: Some Milestones of Mines **65-84**

Mining Hospital
 Danger in Mines
 First Electrification in Asia
 Rock Burst and Tremors

An Experience in the year 1947 by A.Satypal
 Signal Communication
 Mine Workshops
 Mines Town Development
 Robertsonpet and Andersonpet
 Gold panning

Chapter - 6: Remaining Assets and Alternative Plans 85-96

Left over Gold in Mines
 Gold Mines South of KGF:
 1) Chigaragunta Project
 2) Yepamana Project
 3) Ramagiri Project
 Alternative Projects
 Underground Water Dams
 Kolar: District of Tanks
 Hydro/Thermal Electric Projects
 Flootation
 Selection of ore
 Scheelite Reserves
 Effects of Mining
 Mine tailings
 Water Pollution
 International Mines Museum and Mines Institute

PART – 2 SOCIO-ECONOMIC IMPACT OF KOLAR GOLD MINING

Chapter - 7: Religion, Culture and Social activities 97-112

Religion and Gods
 Shaiva and Vaishnava Religions
 Song of a Worker
 Buddhism
 Christianity
 Churches and Anglo Indians
 Victory Church
 Gulmohar of Madagascar

Gymkhana Ground
 Education and Educational Institutions
 Challappa's Educational Institutions
 BGML English School
 KGF First Grade College

Chapter - 8: Miners and their Problems **113-128**

Migration of labor population and its
 mosaic
 The number of Mine workers in-between
 1991-2001
 Daily Wages and Salary
 Soaring Prices
 The workers Absenteeism, Gratuity and
 Promotions
 Household Expenditure and Salary
 Vicious circle of Debts
 Housing and Sanitation

Chapter - 9: Laborers hard work and their health **129-140**

Alcoholism in workers
 Silicosis / Pneumoconiosis
 Endemic Diseases
 Cholera
 Accidents and Compensation
 Number of deaths due to Accidents
 The details of Accidents in between
 1971-76
 Safety and Relief

Chapter -10: Social Conflicts **141-158**

Caste, Creed and Labor movements
 Labor Strikes
 Strike of 1940
 Caste, Creed and Nationality
 Cast, Creed and Communists
 Leaders and Politics
 Protests and Bundh

Chapter - 11: Pre Independence period: Threats, Thefts and Punishment	159-168
Complaints registered against Workers and Citizens	
Complaints proved against Workers	
List of Complaints (1898-1947)	
Goonda Act and Penalty	
First World War and its effects	
 Chapter – 12: Conclusion	 169-174
Future course	
Today's KGF	
 ANNEXURES:	
Places of gold occurrences in Karnataka	175
Some Historical Events	176
Special Reference Books	177-178



Fig.1. Miner’s statue near five lights circle, KGF

PART 1

**Kolar Gold Mining
and its History**

Chapter 1

Gold During Ancient Time

Mineral and rocks have played an important role in the evolution of early human society. The hard rocks and minerals provided the early man with raw material for making stone implements by which he hunted and protected himself against predators. Sophistication of the stone implements contributed to the survival of man through Paleolithic, Mesolithic, Neolithic to Micro-lithic ages. The dawn of civilization witnessed the wandering early man in search of food and shelter. It led him to plateaus and forests closer to river courses and other water bodies. He was always looking for hard rock's to make his weapons of stone to protect himself and his family from the attacking wild animals and to cut trees. The search for hard rock chanced his attention upon the glittering yellow metal with its brilliant luster possibly the first object to arrest his attention. Authentic record of ancient gold mining, though lacking, it appears, was in operation up to about 500-600 A.D. in the first phase. However, the more authentic dates obtained by radiocarbon dating from Oakley's shaft in Hutti Gold Mines suggests dates of 40 B.C. to 130 A.D. at the depth of 80 meter and another sample from the same depth gave 70 A.D to 240 A.D.; from Champion reef Kolar at 50 m depth 430 A.D. to 600 A.D., another from superficial excavation gave 660 A.D. to 860 A.D. (Agrawal and Margabandhu, 1975-76)¹. This represents the first phase of gold mining in Karnataka, India. The second phase of intensive and extensive exploration and mining resumed after a gap of over 1000 years, which led to commencement of a major and profitable mining activity in Kolar and Hutti gold fields (1870 A.D). It is possible in between these two phases there was intermittent excavations and panning and sieving for gold dust in these areas by local people about which we have only fragmentary information.

References to gold are found in the Rig Veda, the Puranas, Mahabharata and Ramayana and other epics. All of which was probably found in the environment of the present day gold mines of the Kolar Gold Fields. Gold is referred by 20 different names in Sanskrit language viz., Suvarnam, Kanakam, Hiranyam, Hema, Harakam,

Tapaneeyam, Shathakumbha, Gangeyam, Bharmaka, Karpuram, Jameekaram, Shatharupam, Maharajathakancha, Rukmam, Karthaswaram, Jambunada, Masthapado, Vasuchandrathanadam, Kalyanam and Bharigyrikam (Levis Rice, 1988, Amara Simha's Amarakosha)².

Gold is the oldest precious metal known to mankind and is the most cherished treasure and wealth of individuals and nations from time immemorial. It is known in India since antiquity. The metal is most prized as an object of beauty. There are enough references to gold in Rig-Veda, *Shastras*, *Puranas*, Mahabharata, and Ramayana and in other Vedic literature. There are several descriptions in Hebrew, Greek and Roman languages. There are ample descriptions of gold in all languages throughout human history. But, who were exploiting the gold? Where were the Mines? These aspects are not documented anywhere accurately. Although gold has 6000 years long history, only for the last 300 years of gold mining are properly documented (Anantha Ramu, T.R. 1999)³.

It is believed that the prehistoric man was utilizing gold, particularly the metal, around 2800 years ago but, there are no evidences of quarrying or mining for gold anywhere before that period. The metal is most prized as an object of beauty and for its unique properties like stability, electrical conductivity, malleability, reflectivity and ductility. During the days of the onset of the River valley civilizations, people from many parts of the world had contacts with South India through the West Coast. Sindbad was one among them. It is learnt that he and his Arab friends were carrying spices through the West Coast. In addition to spices they were also carrying gold and there are evidences to support this. It is believed that the tradition of mining gold at Kolar-Hutti started at least as early as the first millennium BC with linkages to the Indus-Saraswati Valley civilization. Gold articles found in Harappa and Mohenjo-Daro has been traced to KGF through impurities – analysis assay, as the impurities include high silver concentration, found only in KGF ore. Pliny, a Roman historian who traversed in this area in 77 AD, wrote about gold and silver mines (Geetha et al., 2008)⁴. The Champion reef at the Kolar gold fields was mined to a depth of 50 meters during the Gupta period in the 5th century A.D. Subsequently, the metal continued to be mined during the Chola period in the 9th and 10th century A.D., the Vijayanagara Empire from 1336 to 1565, and later during Tipu Sultan's rule. The scale of operations grew at each stage by the digging of small to large excavations.

The story of Midas is world famous as he was known to have received the boon to convert everything that he touched into gold and ultimately the rice he touched also became gold. But, the world has not learnt any lesson from this as the lure for gold has not diminished.

The Egyptians were the first to do intricate craftsmanship in jewelry in earlier times. The Romans were the first to open up gold mines. Several of the new mining

techniques were invented in gold mining. The 'Alchemists' gave several life saving medicines to mankind in their enthusiastic attempts to convert inferior metals into gold. The war waged by Rome on Spain was for gold. South America was plundered by Spanish intruders for the lure of this yellow metal. As the Romans used gold without any restraint, their whole economy collapsed.

In the year 1972 A.D., a scientist by name Mohide had discovered a treasure of gold at a place called 'Varaa' along the bank of Black Sea. This was the first find of ancient treasury in Bulgaria. There were 2000 round balls of pure gold in it. Altogether it weighed 5.5 kg. It was speculated that this gold was excavated from the Transylvania area in the Romanian Alps.

Gold in Bible

As our ancient literature mentions about the relationship of gold and the Jamboo River, flowing around Meru *parvatha* (mountain), the Bible also gives prime position to gold. There are three gold bearing lands mentioned in genesis 2-2-10 (Bible's Genesis, 2-2-10)^{5,9}. It is said that a River in Eden after wetting a garden, split into four branches: the first one designated as Pishaan and this River flows in Hayielahi province. The gold occurring there is supposed to be of superior quality.

It is understood that Israel's King Solomon used to send traders from his country to Ophir country to bring gold, diamonds, etc., to decorate the splendidly designed palaces and temples. In the same chapter of Bible, there are several mentions of gold treasures of Israel. The gifts through gold, given by Syria's King to Solomon (973 BC–933 BC). There used to be ten *talents* of silver (ancient coinage) and 6000 pieces of gold. There are mentions of sending 120 talents and again 420 talent of gold by Tyre's King Hiram to Solomon to decorate the temple of Jerusalem.

The 420 talent of gold appears to have come from the unknown land of Ophir. It was a mystery for a long time as to what this Ophir land was. It was guessed in the early times that it might be one of the countries such as Mozambique, Arabia, India, Sri Lanka or Malaya. King Solomon ordered the Phoenicians to make a ship for him. They followed his orders obediently. They took that ship to Ophir land on a trial basis in the year 945 BC. While returning they brought plenty of gold, ivory, monkeys, peacocks and Almag trees as mentioned in the Bible. This aspect was a mystery for a long time. Only after 'Max Muller' pointed out that words like ivory, monkey, peacock in Hebrew are derived from Sanskrit language and the mention of Ophir was actually a reference to India. Besides this, it was learnt that Almag is actually sandalwood available in Karnataka. From this it was also proved that Ophir refers to Karnataka in South India.

But, some of the modern economists brush aside the above mentioned and instead they question the way in which gold was bartered by the Phoenician traders for getting

gold from Ophir and they did not have anything in return for gold. Some experts argue that India had stored gold up to 400 BC and that's why it was known as Gold Base.

Herodotus had documented around 300 BC that only Patراسي (India) was supplying gold to King Dariyas of Persia. Pliny has documented in his memoir in 77 AD as under: "that the Indians were engaged in the extraction of gold and silver in the foothills of Capitalia Mountains in Nareae". It is said that Capitalia refers to Mt. Abu ranges in the borders of Rajasthan and Gujarat.

During the rule of King Deriyas of Persia (522 BC – 486 BC), part of India's Indus region was under his occupation. It was divided into 20 Kshatrapas. It is said that he was getting tributes from each of the Kshatrapas. When all other nations were giving tributes in silver, only Indus region was giving it in gold dust. Herodotus has documented in 484 BC that 360 talents of gold were added on to the treasury of King Deriyas every year. Added to that, he has nicely recorded details of the way mining was done for gold. He has explained lucidly the way the termites extracted gold from the subsurface and concentrated them on the ground. But, there is no scientific evidence about such a process.

Herodotus

Herodotus has written about India's gold as: "the Indians living in Kasphatiras (including Gandhara State – Peshawar and Rawalpindi, it could be Kashmir also) and Pathrike (Afghanistan) led the life similar to that of Bactria. These people live in the northern part of India. Among the Indians, they are more war enthusiastic and they go to the nearby desert for fetching gold. In this desert lying to the west of Indus River, big ants of the size smaller than dogs but bigger than foxes, are there. The King of Persia has reared these ants. These ants, like those of Greece burrow into the soil, bring out the soil and dump in the form of mounds. Gold is mixed up with this sand and the Indians carry it on camels" (*source: https://en.wikipedia.org/wiki/Darius_I*).

Meghasthanis and Tesiyas

Meghasthanis (302–288 BC) also wrote that the Dardayi people living towards east, extracted gold from the sand dumped by ants and sold it to traders. Before the arrival of Alexander in India, the book by Tesiyas (416 BC) known as 'Indica' gave information about India. There is a mention of gold available in Tibetan plateau. He wrote that book, while in Persia itself, by collecting information from the traders who were visiting India. Tesiyas did not believe that gold occurred in sand. He knew only about the extraction of gold from the plateau regions. He has written that Quadrapedal birds larger than foxes were guarding the gold as per the belief of the Bactrians

and the Indians were excavating the sand during the night time to avoid the birds watch.

Tesiyas continued to write that there was a well in India in which about one hundred pots of molten gold occurred and each pot contained one talent of gold. They break the pot when the gold solidifies. He has described that the depth of the well was only that of the height of a man.

Kautilya's Artha Shasthra

Kautilya's teacher, as mentioned in the Arthashasthra, while preaching him, says that instead of going southwards, it is better to go northwards where elephants, horses, perfumes, ivory, leather, silver and gold are highly priced. But, Kautilya does not agree with this Statement. He firmly says that diamonds, ruby, pearls and gold are in more quantities in south. He affirmatively says that the 'Mines are the sources of treasury'. If the treasury is strong, the State will be strong. He has just indicated the possibility of the availability of gold in south. He has not given any particular information about the location of the gold mines. Even then, it can be guessed that South India was known for gold during the period of Mauryas.

When the wooden pieces occurring in the old gold mines of Chigurugunta were subjected to carbon dating, they indicated an age of 2600 BP. They were using wooden logs to support the underground mine excavations to prevent collapsing of the roof. Jason (1800 BC) of Greece has documented that the workers of Egypt, Asia, etc., were transporting the crushed auriferous ore material in leather bags made from long eared animals. Pliny (77 AD) of Rome has documented that these mines were operating for a few centuries around the Christian era. Julius Caesar of Rome, in fact, wanted to conquer India, after he succeeded in conquering Egypt and looting its gold. But his untimely death deprived him of his ambition.

Alchemy in Egypt

Alchemy was started for the first time in the 1st century in Egypt. By that time, Greece had gained expertise in metallurgy. In the light of the then existing knowledge, some Egyptian experts tried to extract gold. The word 'Alchemy' believed to have been derived from Arabic denotes the color of black soil of Egypt. The Egyptians consider Trismajestin as the father of alchemy. In the 2nd century, China had surpassed others in alchemy. By 8th century AD, the Indian alchemists had also become famous. In 12th century, the Basava followers used the underlying principles of alchemy in their verses as guiding ideas. Al Beruni, an Arabic scholar, came to India in 10th century and studied the Indian traditions and practices deeply which is documented

in his book called 'Indica', a famous book, in which he also mentions about Nagarjuna, who had written by then, a book called 'Rasa Ratnakara'. In 1160 AD, Basavanna has praised the qualities of Parushamani, in his verse as 'see, that the iron in the association of parusha has become gold'; whereas Channabasavanna questions 'is there iron in the mound of parusha' (Anantha Ramu, T.R., 1999)³.

There is an instance in the history of South America, where a tribal community got perished due to gold. Marco Polo visited China and India in 1295 AD during which time he praised their wealth. While writing about the gold, he said the Rivers here carry gold and there are grains of gold in the lakes. He traveled to Atlantic province to please the King of Spain, Pardinand and the Queen Isabella.

Columbus wanted to discover the trade route to India. He had not forgotten the description of Marco Polo. West Indies and Japan made him lose track and initially he mistook Cuba as a part of the East. In 1492 AD he reached South America and asked, first question 'Where is Gold?' to the local tribes.

When Mallick Qafir invaded India on the orders of Allauddin Khilji, many temples were destroyed and plenty of wealth was looted. In the invasion of 1310 AD, Phirasta writes, most of the gold treasure of South India was plundered. When Mallick Qafir returned to Delhi after this victory, he was accompanied by 612 elephants, 2000 horses and boxes filled with 96000 mounds of gold. Those days, one mound was equivalent to 19 pounds in Travancore, 16 pounds in Ahmed Nagar, 25 pounds in Madras and 28 pounds in Bombay, which mound was documented by Phirasta, is not known.

The famous California gold rush in 1848-56 AD, changed the complexion of America. California had accumulated world's half of the gold production (7,52,400 kg) in just eight and half year's time. At that point of time world was having 15,08,200 kg gold as in the records. The people there had forgotten cultivation because of this gold hunting. As the Govt. gave free hand without any restrictions, to the gold hunters, and to utilize this golden opportunity, thousands of people from all over the world rushed to California. The New York Times wrote about this as the 'Peak of American Golden Age'. In 1857 AD, due to this gold boom, the population rose to 2,50,000. The people had undertaken all types of risks in their bid to possess gold. People reaching this place had to suffer from epidemic diseases and had to face the Indigenous Indians. It is estimated that nearly 5000 people lost their lives en-route. By the end of 1860 AD, the number of gold explorers had touched 45,000. In 1853 AD nearly 25,000 French and 20,000 Chinese people had reached.

India was one such area. Another basis for such thinking is the presence of 'Megaliths' near ancient gold workings. Such megaliths are seen in South India that too in Mysore State and the adjacent Nizam's State of Hyderabad. Megaliths are huge rocks erected in circular fashion at places. Capt. Leonard Munn, who had supervised the gold mining in Deccan Plateau, had documented the megaliths close

to the gold, copper and iron occurrences. Such megaliths are also seen in KGF. If such evidences are accepted, KGF has a history of 4000 years (Capt. Leonard Munn)⁶.

India – A Golden Land

India's gold heritage has appeared as a wonder to the western countries. They called India—the land of Rishis and Saints. The name 'Bhoomi' for India is there from a long time. The ancient Indians had given a prime position for gold. Gold has acquired an invaluable position in Vedas. There are several stories in Puranas in which gold is considered a divine metal. Since, Vedic period, gold has appeared as the best metal for Indians. Several *slokas* in Rig-Veda uphold the supremacy of gold. The first *sloka* of the Srisookta begins with a prayer to Lakshmi. *Hiranyavaranam harinim Savarna Rajatha Srajam Chandram Hiranmayeem Laxmi Jathavedo Ma Avaha:* Oh! Agni, who knows everything, bring the goddess Sridevi whose body glows with the luster of gold, fair colored, one who assumes the figure of a deer, possessing a pleasant glow of moonlight, golden colored and having all pleasant features.

The Aryan Rishis asked for the blessings of Srilaxmi in the form of gold, cow, horse and wealth. They praised Laxmi as Hiranmayi. The attractive color of gold had arrested the attention of the Rishis. Gold not only served as decorative jewellery but also served as a euphemism. In Rig-Veda, there is mention of many metals besides description of their processing methods. As mentioned in the Shathapatha Brahmana, the sacrificed animals in the Yagnas were needled with golden needles. The rare quality of gold had elevated it to a higher status. The Apasthamba Gauthama Rishi had prescribed death penalty and severe punishment for gold theft. There are such feelings in all human beings that wearing gold jewellery enhances beauty and wards off diseases.

It is clearly mentioned in the Shathapatha Brahmana (Shukla yajurveda) that gold was extracted from the silt of Punjab rivers. Several names are ascribed to gold in Rig-Veda alone. Gold was used for jewellery and making for golden spoons, pots, etc. The Vedic period Rishis called the Himalayan Rivers as golden rivers. Sindhu river is called Hiranyani, Hiranya Varni in Rig-Veda.

The puranas have praised the '*Meru*' *parvathas* as golden mountains. The Althai region lying to the north of Himalaya is supposed to be the *Meru Parvatha* according to pandits. In that province not only gold occurs, but also Jamboo river flows there. Gold is suitable for the decoration of the gods. It glows like the worm Indragopa. Thus, gold's provincialism is indicated in Mathsyas Purana.

In Tripurupakhyana, there is an instance in which the Tripurasuras pray to Brahma to bless them a boon to construct a strong fort which cannot be untangled by even

gods. For them, the architect constructed an iron fort on the earth, a silver fort in the sky and a golden fort above that. Each fort was measuring 100 yojanas in both length and breadth. Whatever the Puranas say, keeping it aside, one thing becomes clear that during the time of writing them, man was using gold, silver and iron.

Kavanagh (1968)⁷ opines that gold might have been extracted from the alluvium or from quartz in KGF and in Central Asian regions between 2000 BC and 4000 BC. Between, 2000 BC to 1000 BC, probably the concepts of linking gold occurrence with geological processes might have taken roots. Around 450 BC, Herodotus was able to identify the link between gold and quartz.

KGF Gold in Indus Civilization

As stated by Capt. Leonard Munn, the people involved in extracting gold in South India were all locals. The stone edicts established by Emperor Asoka are located at 23 places all over the country and among them; eleven are in Karnataka and Andhra Pradesh. The archaeologists extend the antiquity of gold mining up to the Indus Valley civilization. The gold used in Indus Civilization is of light colored and it has more silver in it. This gold matches specially with the gold of KGF and Hutti (Raichur district, Karnataka). Except these two gold Mines, during those days, it appears that there was no other gold mine in the country. The gold taken out from alluvium is different from the one from KGF and Hutti. Prof. Alchin and Dr. S.R. Rao uphold the same view.

Maclaren, a geologist, had documented in 1906, all the gold occurrences through a detailed survey. Accurate recording of gold mining in KGF began in 1802. Pliny has written about gold occurrences like this. When the relics of Neolithic period were brought to light in and around Raichur, the archaeologists lent support to the Wheelers opinion. Based on these evidences, Prof. Alchin States that gold was probably supplied from this area. Upholding this argument, S.R. Rao continued to say that gold from Hutti and KGF was supplied to Lotul (Lothal) and Indus valley and bead strings made of talc from Maski, Piklihal, Tekkalakote, Uthanur (2000 BC), etc., were supplied to Harappa civilization.

KGF was mined prior to the 2nd and 3rd century AD by digging small pits. Golden objects found in Harappa and Mohenjo-daro has been traced to Kolar through the analysis of impurities of 11% silver concentration, found only in KGF ore. The Champion reef at the KGF was mined to a depth of 50 meters (160 ft) during the Gupta period in the 5th century AD. During the Chola period in the 9th and 10th century AD, the scale of the operation grew. The metal continued to be mined by the 11th century kings of South India, the Vijayanagara from 1336 to 1560, and later by Tipu Sultan, the king of Mysore state and the British (Gold mining, Wikipedia, the free encyclopedia)

Tekkalakote – Bellary District

In the excavation carried out near Tekkalakote, Bellary district, ancient ornaments were recovered. These are the oldest ornaments obtained in Karnataka but it cannot be said the gold used for these ornaments was derived from KGF or Hutti Mines. It was guessed that gold recovered from Hutti and KGF might have been carried via Honnavara, on the west coast, through the sea route to the Indus Valley. S.R.Rao, said that the very name Honnavara suggests a link with gold. The gold produced in KGF has 935 parts of gold and 65 parts silver, whereas Hutti gold contains 930 parts of gold and 70 parts silver. Both are light yellowish in color. It has to be agreed that there is similarity between this gold and the one used in the Indus Valley.

Eleven Stone Edicts of Emperor Ashoka

It is a special feature to note that the eleven stone edicts established by Emperor Asoka are located very close to the gold and base metal occurrences. Nine of them are in Karnataka are: Brahmagiri, Siddapura, Jatunga, Rameswara (Chitradurga District), Maski (Raichur District), Nittur, Udagolam (Bellary District) and Palakkigundhi and Gavimatha (Koppala District). Besides being base metal occurrences, these places were also densely populated. During the medieval period, i.e., during Sri Krishnadevaraya's time and later in the time of Hyder Ali and Tipu Sultan, there are evidences of gold mining activities in KGF.

Turin Papyrus Map: World's First Mines Map

A scientist by name Bernardino Drovetti, in the year 1820 AD, found this map in a stone quarry in Wadi Hammamat area. It is located in the desert area of East Central Egypt. It is learnt that this map was prepared during the reign of Ramses IVth (1115–145 BC), which means that this map is nearly 3100 years old. This map depicts igneous, sedimentary and metamorphic rocks, through a color scheme. Also depicted are features like valley, hills, depressions, mine, four tunnels, one shaft and dwelling area of laborers.

The ancient gold mines of Birum Pawakir, the stone quarries of Bekan and the tents of the laborers are shown in a modern style in papyrus map. Such detailed maps were prepared by French and German scientists at around 1750 AD. This 0.41 x 2.80 m long map had deteriorated in course of time (It was reshaped by joining the torn pieces). This map was prepared by a person called Amannakhte son of Iphy. As depicted in the lithograph of a tomb in Thiban Necropolis, this map was prepared during the time of Ramesses IV. The basis for this interpretation is the handwriting of Amenctay believed to be his own. This lithograph was collected from a family tomb

of Amannakte at Deer Al Meera. This papyrus map is the oldest in the world and is presently preserved in the museum of Turin city (James A Harrel and V Max Brown)¹⁰.

It is estimated that the gold collected during the period from 2000 to 1000 BC was three times more than all the previous ones. It appears that King Solomon was getting 18 tonnes of gold per annum as royalty from the tribes who were collecting gold. In 1532 AD, the King of Spain Atolpa presented 6 tonnes of gold which had filled up one room. The quantity of gold transported from Mexico to Spain from 1522 to 1547 AD was 30 metric tonnes. According to an estimate, in India, nearly 100 tonnes of gold was found during Copper Age (3600-2100 BC), 250 tonnes during Bronze Age (2100-1200 BC), 425 tonnes during Iron Age (1200-50 BC), 125 tonnes during Roman time (50 BC to 500 AD), altogether 900 tonnes. Bache (1997), historian, says that there was a collection of 990 tonnes of gold between 3900 BC and 500 AD.

It is estimated that 145 tonnes of gold produced between 500 AD and 1500 AD and 830 tonnes between 1500 AD and 1997 AD. Between 1977 and 1980, 19 tonnes from KGF mines, 2 tonnes from Ramagiri (A.P), 21 tonnes from Hutti and 5 tonnes as by-product from copper ore, altogether 47 tonnes were produced. It is learnt that gold and diamonds were present in the Nandidroog fort of KGF. In later times, it appears that Nandigudda was mined to change it to Nandidroog mine (Seetharaman, K.S. 1989)⁹.

Swarnagiri (Maski)*¹⁰

There is a stone edict of Ashoka period near Maski, Lingsugur taluk, Raichur district, Karnataka. Mann brought to light many archeological relics from the excavations there. Several objects like shell necklace, brick pieces and pottery were recovered in the excavations. It is mentioned in the Brahmagiri lithograph that Swarnagiri existed at that time and Mann, based on these evidences proposed that probably Swarnagiri was the southern capital of Emperor Ashoka. Near the lead and zinc mines of Agucha in Rajasthan, evidences of Maurya period are found. Probably, these edicts were carved to denote the importance of gold mines or to spread Buddhism as it was a densely populated area (Raghunandan, K.R, 2004)¹¹.

Maski edict is the main lithograph. It was written on the orders of Emperor Ashoka. Mauryan rule was prevailing up to 4th century BC. According to Alchin, around this time, the Hutti underground mines were deepened up to 200 m and were the deepest mines in the world. There are lithographs of Ashoka period in Wajrakarur of Andhra Pradesh also. But, no such lithographs are seen around KGF. The reason was probably the Mauryan rule did not extend up to KGF.

No other historical, lithographical evidences give any definite clue about the gold Mines. And also the travelers who visited Vijayanagara Empire such as Domingo

Pius (1530-32 AD), Nunij (1535-37 AD), Abdul Razaak (1442AD), Doarte Barbuja (1503 AD), Nicholo De Conte (1420AD) have not given statements about KGF. Probably, the gold mines were closed during that time or might be other reasons were there.

Wheeler had said that 'the gold occurred in Gandhara, Afghanistan and to some extent in Persia also'. Gold was recovered from river beds in India by panning. Gold occurs in abundance in South India. That too, mining is done in Mysore. The gold used by Harappans for necklaces and other jewellery, at least a part of it, might have come from South India.

References

- 1 Agarwal, D.P. and Margaband, C. (1975-76) Ancient gold workings: Some new ^{14}C dates. Archeology Magz., no.8.
- 2 Levis Rice (1988) Amara Simha's Amarakosha. New Delhi.
- 3 Anantha Ramu, T.R. (1999) *Rajara loha lohagala raja* (Kannada): Navakarnataka Publ., Bangalore.
- 4 Geetha, Suresh, H., and Jeewan Kumar (2008) A report on the ancient gold mining at Kolar Gold Fields, Kolar district, Karnataka.
- 5 Bible's Genesis. 2-2-10. In: Seetharaman, K.S. - Kolar Thangaveil Varalaru (1989) (Tamil)
- 6 Captain Leonard Munn (1941) The Journal of Hyderabad Geological Survey, Govt. Central Press, Hyderabad, Deccan. v.iv, part 1.
- 7 Kavanaugh, P.M. (1968) Have 6000 years of Gold Mining exhausted the world's gold reserves? Can. Inst. Min. Metall. Bull, v.61, no.672, pp.553-558.
- 8 James, A. Harrel and Max Brown. V. The World's oldest Survey Geological Map. 1150 BC. Turin Papyrus from Egypt. Department of Geology. University of Toled. Ohio.
- 9 Seetharaman, K.S. (1989) Kolar Thangaveil Varalaru (Tamil), Megaliths: these are found in KGF area.
- 10 *Swarnagiri (Maski), 30 km south of Hutti Gold Mines.
- 11 Raghunandan, K.R. (2004) Deccan Herald.

Chapter 2

Gold Tradition in Karnataka

Kannada Naadu Chinnada Beedu (Kannada land a nest of gold)

The sage of Kannada literature Acharya B.M. Srikantaiah has praised Kannada land as 'the land of gold and habitat of sandalwood'. Several poets have written laurels on Kannada land. They have said that it is the seat of sculpture. It is the land of Ranna, Pampa. The beauty of Karnataka is not just external. It has plenty of gold in its belly. The gold mines which have a tradition of thousands of years are found only in Karnataka. This tradition of gold in Karnataka begins with KGF and to this are added the gold mines of Hutti, presently the only working gold mines in India.

During the colonial period the British army was camping at Bangalore Cantonment after defeating Tipu Sultan in the 4th Mysore war. The soldiers in the British army had several skills and they could not remain idle during peace time. Some of them went to Ooty, Neelagiri and became coffee planters and some others went in search of wealth of the land.

After knowing that the alluvium deposited by Periyar River near Wynad had gold in it, some of them went in search of the same. As their efforts did not succeed much, their attention was diverted towards KGF, after hearing that the ancients there had mined for gold (Anantha Ramu, T.R, 1999)¹.

There are many places in Karnataka whose names begin with pure Kannada words meaning gold like 'Honne' and 'Honnu (gold)'. Munn tried to understand the antiquity of gold mining by grasping that the place names near gold mines are also important. Honnugallu, Honnali, Honnabetta, Honnebagi, Honnehatti, Honnukuni, Honnadonne, are all known for ancient gold mining.

Medieval Mines

The ancients had deepened the Mysore Mines in KGF. At several places in these mines, pottery, wooden logs, ropes, iron pestles, mortars, etc., have been recovered. In 1906, a geologist by name McLaren surveyed KGF and Hutti areas and reported

nearly 300 ancient mines / depressions. In these mines also, the implements used such as iron pans, stone altars, pottery pieces used for dewatering and other works were recovered. It is recorded that there are signs of gold extraction in these mines during the reign of Sri Krishnadevaraya, Hyder Ali and Tipu Sultan. One person by name Raja Ramachandra, a mining expert, had done gold mining with the encouragement of Tipu Sultan (Anantha Ramu, T.R. 1999)¹.

In olden days, they used to burn firewood on auriferous quartz which would breakup into pieces when water was poured on its hot surface. Then they used to crush the ore. This fine powder was washed in small round depressions on a sloping ground so that water with lighter material would flow out leaving behind the heavy gold, as its density is 19.3. That way gold was separated. In the Coromandal Mines in KGF, in the tunnels at 200 feet below ground level, several objects used for mining such as pottery pieces, wooden logs (used for preventing mine collapse) and pestle-mortars have been recovered. At several places the stone mullackers with ore tailings are seen. Rows and rows of small size depressions used for gold washing on the hard rock such as amphibolites and metabasalts can be seen even today.

Hutti Gold Mines: Capt. Leonard Munn and Prof. Alchin

Mining expert, Capt. Leonard Munn has documented about Hutti Gold Mines as: 'One thing is very clear from the ancient gold mines of South India. The rocks which are enriched up to 2 to 3 ounces gold/t have not missed the attention of the ancients. They had inculcated the practice of setting fire on quartz² to separate gold. They could not continue deep mining beyond the ground water table. But, it did not happen everywhere. They had mined up to 640 feet in the Hutti Mines. This is not only a record in India but also in the world' (Capt. Leonard Munn, –Champion of Thousand Wells)³.

The famous archaeologist Prof. Alchin, based on these evidences opined that these mines belong to the early part of 1st century. Similar iron pans are discovered in the KGF Mines also. Who were these ancient miners? Even today, it is a subject of debate as to who were the mining experts. They had an intimate knowledge of auriferous rocks. Munn has documented thus elsewhere, what were the facilities they had to mine up to 640 feet below? How could they work up to that depth? How many years of labor did it take? He questioned without answers.

The ropes used in Hutti Mines are worn out by constant friction with the mine walls. Some of the wooden logs are so strong that they cannot be cut even by a saw. Around the mines and also inside the mines, hundreds of grinding stones, stone pestles and mortars are found. There was no need to adopt extraction process employed for iron and copper. By seeing the level of activities here, one can surmise that a large industry was working here. There are more than 300 ancient gold

mines in Karnataka including KGF and Hutti. The Kempinakote gold mines near Channarayapatna, Hassan District, have been considered as the largest ancient mine in the world. It is impossible to develop such big mines in one or two years. It must have taken decades.

Eliot Smith, a mining expert said, "The people who did mining here probably came from Egypt or had direct contact with them". For those who came from outside, where was the time to do so much of mining? Eliot Smith names many archaeological objects suggesting that they belong to Iron Age. Among them are megalithic practice, circular tombs, and stone pillaring, etc., which he says are very prominent practices. But such evidences are not only limited to the mines area. They are seen all over the State. In that case, to say they came from Egypt would be erroneous, says Capt. Munn.

Capt. Munn (1936) rejected outright such theories. In that case where did these miners come from? Munn says, "they were not outsiders, they are all locals". The gold mines similar to those in Karnataka are also found in Rhodesia. Archaeological objects are found there also. The mines there are as deep as our mines. It is more or less the same design. The way it is excavated, it is similar to the one here. Also the wild cotton and tamarind tree grew around the gold mines in Rhodesia. Capt. Munn wrote to Major Mr. Lithput seeking the geological information about Rhodesia. In reply, Mr. Lithput wrote: "In my own experience, the Rhodesian ancient gold mines are similar to the ones in Hyderabad Province (which was known as Doab Province in Raichur District under Nizam's Rule). The pictures of stone grinders of Hutti area resemble those here. Other than the plants that you have written, there are Mahomahobo and Wild Demon Plants which are not local plants".

In 1898 AD, Cecil Rhodes placed all the evidences of mining in India before an experts committee who ultimately agreed that India is the original country where gold mining practices started. Some experts opined that the Africans might have done some minor mining here and there. Based on these, Munn wrote, "Karnataka's gold mining practice continues till the Iron age ever since it started".

Leonard Munn, besides describing ancient gold mines, has also described grinding stone, mortars, pestles, etc., occurring around the mines. He has made a detailed note that all these were recovered from the ash beds near mines. Prof. Alchin has clearly stated that there is no relation between gold mines and ash beds. He has explained that it is an accumulation of ash due to burning of cow dung during Neolithic period. Having discovered relics of Neolithic period, he said that gold mining in that part of Raichur district must have started in the Neolithic period itself. There are no evidences for deeper mining in those days. They might have taken out only the gold occurring on the surface rocks; the equipment for deepening mine was not available in those days. As the civilization advanced into Iron Age, it was possible to do deep mining. The iron implements occurring in some of the ancient

mines that lend support to this argument. Alchin is of the opinion that gold mining started in Maurya period and later during Shathavahana period those early mines were deepened.

At present, most of the ancient mines are obliterated. Some are covered up by later cultivation and some have collapsed and are filled with soil. When Munn undertook a detailed study of the Hutti mines area, most of the ancient mines were covered up. Some were closed with blocks of rocks. They were probably closed as a precaution against cattle and children falling accidentally into them or to escape from the foreign invaders. Some people feel that the mines were covered up during the Muslim invasion.

The earlier generation has not left behind evidences for all their deeds. It may not be entirely possible to understand all that transpired through lithographs, records, history, etc. The history of mining also faces lack of making use of utensils, materials, equipments, implements, pottery, etc. The time of mining could be realized in general. But, they are of no use for the purpose of precise time determination. Mostly, they were using the Babul trees for this purpose as pillars, because it is naturally a very strong tree. This tree is presently a very useful tool to learn the age of the mines by the scientists. How does the babul tree inform us about the age? To understand this, we have to essentially learn about the way the nature works by making use of its fundamental materials and about their internal structures. Every element has definite atoms which have nuclei inside their structures. It is like seeds inside fruits. Electrons revolve around these nuclei like the planets around the Sun. The number of protons in the nuclei is equal to the number of electrons. This number is called the atomic number of that element. The number of protons and the number of neutrons in the nucleus determines the atomic weight of that element. The number of neutrons will not be the same in all the atoms. For example, we can consider carbon dioxide.

Carbon Dating

In the nucleus of Carbon12, there are 6 Protons and 6 Neutrons. This is in equilibrium. In the nucleus of Carbon13, there are 6 Protons and 7 Neutrons. In the nucleus of Carbon14, there are 6 Protons and 8 neutrons. Among these, Carbon14 is unstable. It gets reduced to half of its original volume by undergoing radioactive decay in 5760 years. That way, one gram of carbon gets reduced to 0.5 gram in 5760 years. Finally, it gets converted to nitrogen. By using this principle, the time of carbon fixing can be measured accurately. By taking samples of the wooden logs and charcoal used in Hutti and KGF, by the ancients, the time of mining was determined accurately. The scientist Dr. Libsy who adopted this technique for the first time in 1960 got the Nobel Prize.

The antiquity of the gold mines of Karnataka (based on Carbon Dating) ^{5*}

	Mine	Location of the Sample	Period
1	KGF	TF 1199 Roof of the Mines	1290 $\pm$ 90 years BP (660AD-860AD)
2	KGF	TF 879 Champion Reef 50 m depth	1500 $\pm$ 115 years BP (430AD-660AD)
3	Hutti Mines	Sl. No.2, Oakley Shaft, 80m depth	1945 $\pm$ 70 years BP
4	Hutti Mines	Sl. No.2, Oakley Shaft	1865 $\pm$ 70

(Agarwal, T.P. and Margabandhu), No.8, 1975-76)⁴

The above statistics help in fixing the age of the mine development. But they do not show the time of beginning of the mines. According to this data, about 1700 years ago, the ancients had reached that level. In 1st century AD itself, the Hutti Mines had reached the depth of 300 feet. The archaeological relics of Ingaldhal Copper Mines, near Chitradurga, were subjected to age determination. This has indicated that the mining was done around 2000 years ago at the time of Shathavahana rulers. Surprising aspect is that there is no mention of this in any of the lithographs. The wooden log sample collected from Uti mine in Hutti Gold Fields area has yielded a carbon age of 660 AD to 780 AD.

Geology of Karnataka

The Mullayanagiri peak is the highest point (6297 feet) in Karnataka. The enchanting evergreen forests of the Western Ghats – the Sahyadri are nature's best in the world. Agumbe in Chikamagalur district is known as the Chirrapunji of Karnataka. An average of 8175 mm of rain falls per annum. The Gerusoppa-Jog Falls of Shimoga district and the Shivanasamudra Bluff Falls are world famous for their splendid scenic beauty. The spectacular columnar joints in basalt rocks are exposed at St. Mary's Islands off the coast of Udupi. The Krishna, Cauvery, Bhima, Thunga-Bhadra, Hemavathi, Vedavathi, Sharavathi, Malaprabha and Ghataprabha rivers flow from the Western Ghats in Karnataka. One special feature of Karnataka is that it is in a safe zone away from cyclones, tornadoes, tsunamis, etc. The earth rotates from east to west as a result of which the tsunami waves generated in the Bay of Bengal do not affect Karnataka.

The greater part of the terrain of Karnataka is covered with very ancient rock types. The gneissic rocks occurring in Hassan district are nearly 3.3 billion years old. The terrain of South India is made up of very old shield areas and it can be said that mostly it is free from any significant seismic activity.

Karnataka has an aerial extent of 1,91,794 sq.km which is made up of wide

ranging rock formations such as the Sargur Group of rocks, Peninsular Gneissic Complex, Dharwar Supergroup of rocks, charnockites, migmatites and varieties of granites, basic and ultrabasic rocks, dykes and sills quartzites, cherts and other sedimentary rocks of Archaean age. In the northern part the Kaladgi, Badami and Bhima Groups of sedimentary rocks of Proterozoic age predominate in addition to the 65 million year old Deccan Traps. The temples and statues of Beluru, Halebeedu, Badami, Aihole and Pattadakal are made of soapstone which occurs in Karnataka. Hampi and Gommateswara of Shravanabelagola are made of granite.

Karnataka can be divided into four Geomorphological divisions i.e., western coastal plains, Western Ghats – the Sahyadri mountains, north and south Karnataka plains. In between the N-S trending Closepet granites extend from Ramanagara in the south to Hampi and beyond in the north. In addition to this, several greenstone belts endowed with iron, manganese, gold, silver, copper deposits are seen from west to east. These are predominantly made-up of amphibolites and metamorphosed basalts occurring within these rocks. There are several metallic deposits of economic value. The Kolar and Hutti gold Mines are world famous. Besides gold, there are deposits of copper, silver, emerald, uranium, iron, manganese, chromite, granite, dolomite, limestone, silica, asbestos, ceramics etc.

According to the statistics of 2007-08, there are a total of 226 mines in operation in Karnataka. Out of these, there are 3 gold mines, 56 limestone, 34 silica, 37 iron and 17 manganese mines. There are thousands of granite quarries. The total mineral production in 2007-08 was valued at Rs. 13,63,57,57,000. (Indian Minerals, 2008-09).⁶

There are a total of 13 greenstone belts in Karnataka. At about 50 places one can see ancient/old workings of gold. The metabasalts and the schistose amphibolite rocks seen in KGF are the metamorphosed lava flows and volcanic eruptions of 2900 my age. Later, emplacing into these rocks are the auriferous quartz veins and shoots (which are also called lodes). The Kolar schist belt occurs for 80 km length in N-S direction in the Peninsular Gneisses. This belt extends from Mallappanakonda (Chittoor district in Andhra Pradesh) in the south to Srinivasapura (Kolar district in Karnataka) in the north. The Bisanattam (village) granite in the south and Patna (village) granite in the north have intruded into the greenstone belt. The auriferous quartz lodes occur only between these two granites. Mainly in the southern KGF, for about 8 km strike length and 1.5 km width, 26 auriferous lodes are localized. Ancient mines were dug up on all these lodes (Ziauddin, M. and Narayanaswamy, S., 1974)⁷. The ancient workings can be identified with the help of dumps and crushed material around the mines. The gold released from such crushing, gets transported by the flowing water and accumulates in the alluvium as placers.

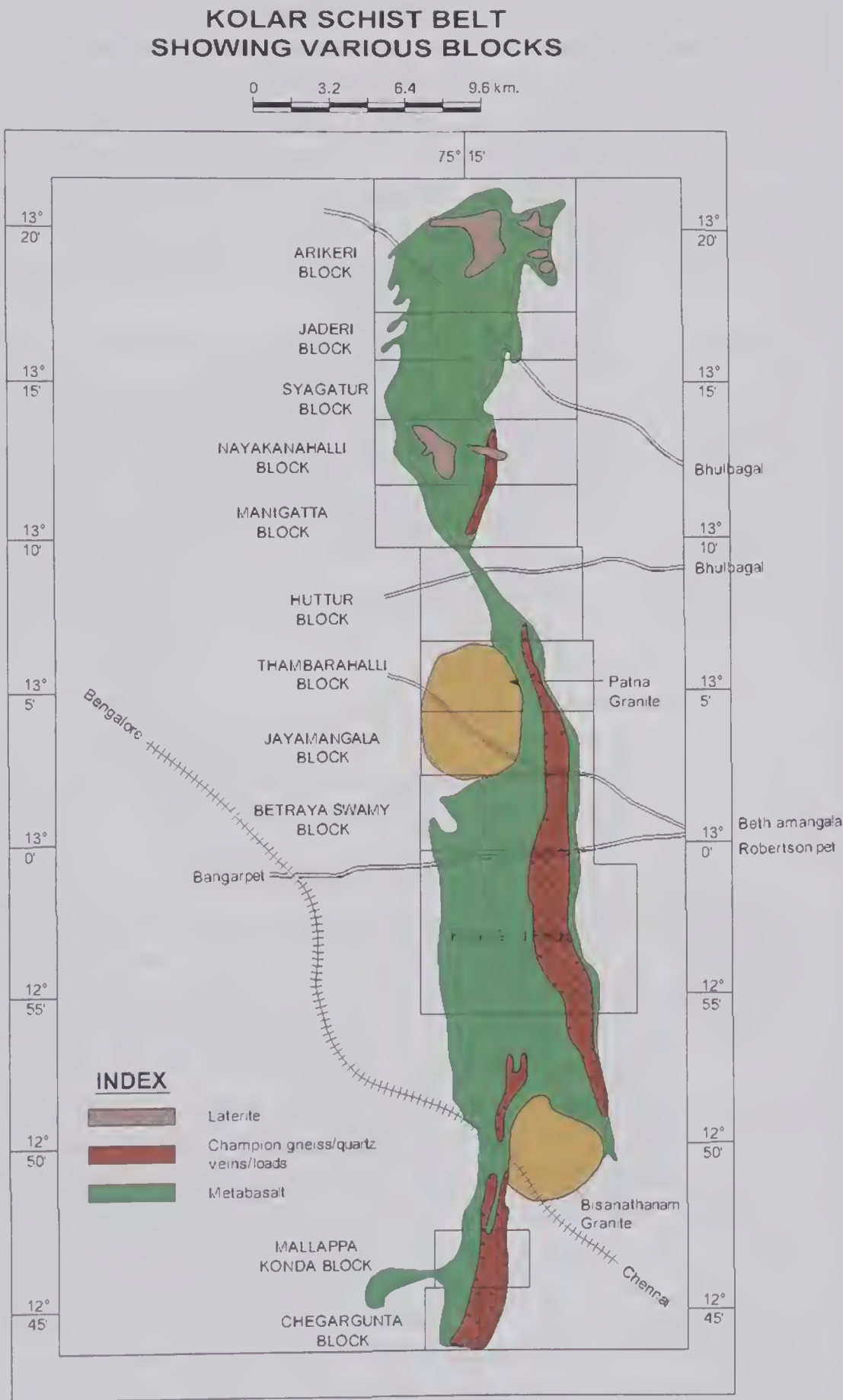


Fig.3. Kolar schist belt (after GSI)

Gold occurs in the natural form in the following rock types

1. *Lode gold quartz carbonate type*: It occurs in the metamorphosed volcanic rocks of middle Archaean age (3 billion years) as intrusive into fractures and shear zones. Most of the gold in our country occurs in such rocks. Such rocks are seen in Kolar and Hutti gold fields.
2. *Sulfide type*: Basalt / amphibolite schist and banded magnetite quartzite hosted auriferous quartz veins. This also belongs to middle Archaean era.
3. *Granulite rocks*: Quartz carbonate and disseminated sulfide type.
4. *Disseminated type*: In metamorphic and altered rocks, gold occurs as fine disseminations. In this type of gold occurrences, the grade of gold is very low and it can be worked out by open cast mines.
5. *Volcanogenic massive sulfide deposits*: In this type of gold occurrences, gold, silver, copper, lead, zinc, etc., occur together.
6. *Conglomerates and Quartzite*: Gold accumulated in between quartz grains and pebbles in conglomerate, derived from the weathering of gneisses and schist. This type of gold occurrences is localized at the contact of Archaean and Proterozoic rocks (2.5 billion years).

Gold – A Glittering Metal

Gold is a wonder metal with unique physical and chemical properties. It has the golden yellow color of Sun. Its density is 19.3. But it is very soft with a hardness of only 3 (in Mohr's Scale) when it is pure. It melts at 1060° C and boils at 2966° C. Electricity can be conducted by gold. Its chemical symbol is Au, atomic number is 79, atomic weight is 196.967, and its volume is 10.2. It occurs as fine grains, sheet like, filaments and in lumps in nature.

Nearly 2.5 km long wire can be drawn from 1 gm of gold. One ounce of gold can be beaten to 0.000001 inch thick sheet which is 68 square feet in area. Because of its high density, 1 sq feet of gold weighs half a tonne. It does not get attracted by magnets. It does not lose many of its properties in the form of jewelry or coinage even after getting buried for thousands of years. It regains its sparkle when brought out. It reflects Sun rays and also infra red rays (Geochemistry, Brian Mason)⁸.

On some occasions, it gets admixed with several metals. Very rarely it occurs in pure form. Small quantities of silver, copper, iron, titanium, lead, aluminum, antimony, mercury, vanadium, bismuth, manganese, etc., occurs in gold. This determines the purity of gold expressed as e.g., 9969 parts of gold and 31 parts of metallic impurities. It gets mixed up with silica and other metals due to geochemical processes (Ziauddin, M. and Narayanaswamy, S., 1974)⁷.

The role or contribution of gold to the development of science and technology is immense. Metallurgists carried out extensive research during the medieval period.

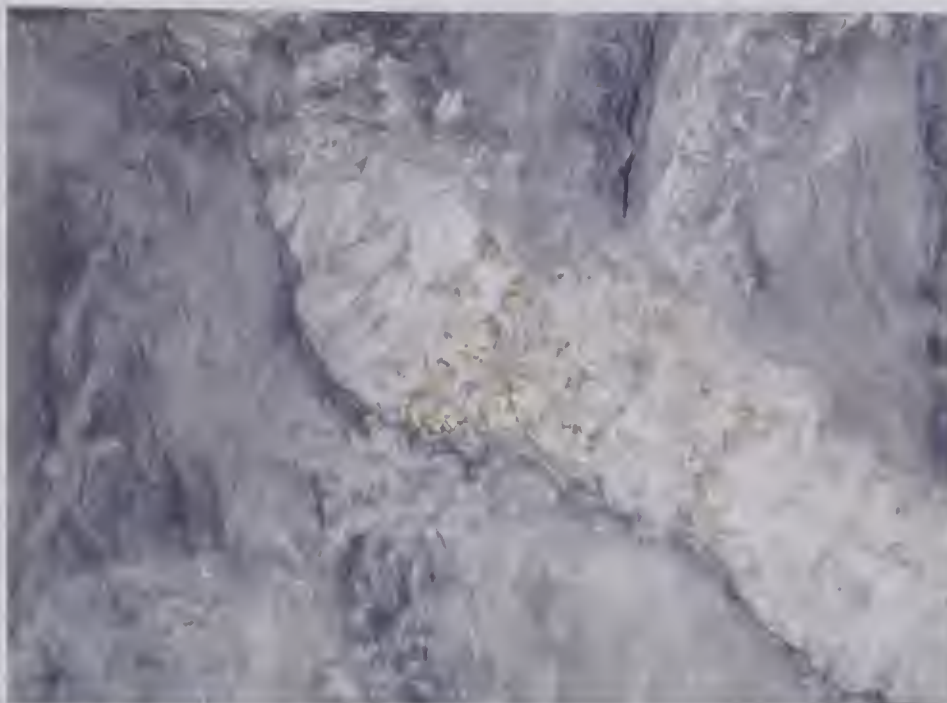


Fig 4. Gold glittering in quartz veins (www.pinterest.com)

Several new metals came to light. In addition, several life saving drugs were also invented. Gold is also used in medicine, electronics and space research.

Before the commencement of John Taylor Company (1880) approximately 6200 kg gold had been recovered from ancient workings. But, no authentic records are available. It was calculated based on the length, width, depth and the average of gold content of the old workings¹¹. KGF mining was closed completely on 28 February 2001 (Nagabhushana et al. 2008)⁵.

Pilfered / Stolen Gold

Only about 830 tonnes of gold have been accounted for, officially. In addition to this, an average of 6200 kg gold was presumed to have been produced prior to 1880. More than this, it is a general perception that some corrupt officers, chameleon politicians, trade union leaders and workers have also pilfered unaccounted gold. There are instances of trapping officers, politicians, workers while stealing gold. The ore brought from tunnels, mills and mine tailings was crushed in homes, mixed with mercury and gold was separated. It may not be possible to estimate exactly the quantity of such pilfered gold. By 1980 AD, the production came down and the mines were incurring losses. It was learnt that 500 to 1000 people were regularly involved in thefts. K.S.R. Chari had mentioned in his report that the nexus between thieves, merchants, agents and mafia should be condemned. In addition to this, all types of books, reports, articles and mining literature were stolen from the mines library.

The mines were under profit up to 1950 AD. The depth achieved then was

13,000 feet which was the deepest in the world. The mines were known for the technology employed for mining. It had the distinction of employing highly skilled mining engineers, metallurgists and technicians. In later days, the mines were further deepened thereby exhausting the gold reserves. Besides, it became more and more difficult and dangerous to work in deep tunnels. Innumerable rock blasts were taking place. Low intensity tremors were common.

In the first decade of mining since 1880 AD, altogether 6 companies were working on 1,58,000 tonnes of ore and produced 47.5 kg of gold. During this time, the ore was crushed to fine powder and gold was separated by gravity separation method and by amalgamating with mercury. Later, cyanidisation process was adopted. The profits earned in first two decades were reinvested into the development of mines. Later to that 6,00,000 tonnes of ore per annum with a grade of one ounce was produced amounting to 15 to 20 tonnes per annum. What started as a small scale mine in 1880 began to grow into one of the famous and profitable mines in the world. The gold mines were paying the royalty and a part of the profit to the Mysore Govt. for five decades, thereby lending support to the developmental programs of the Mysore Govt.

Hundreds of workers, engineers, technicians and metallurgists trained in KGF, were responsible for starting many mines and factories in the country. For this reason, these mines are called 'Mother of Mines'. After One Hundred Years of mining for gold in 1980 AD, the losses began. Further, during the next two decades the losses reached 50 crores and for that reason the Central Govt. decided to close the mines. All the efforts to enhance gold production failed. In the surrounding prospects, no suitable rich lode could be identified. Even from the Mallappanakonda and Chigaragunta mines, developed in the last decade, sufficient production had not come.

Under the management of the KGF Mines, the gold mines at Ramagiri gold fields were reopened. There was not much use from these mines. At the same time, the price of gold plummeted in the international market. The gold mines were completely closed on 28th February 2001. Now, what remain are the memory of the 'Little England' and the grandeurs of the century of gold mining (Chari, K.S.R., 1985)⁹.

Deep mines more than 3 km and tunnels of 1670 km got slowly inundated by water. Will these Worlds famous mines reopen again or are buried totally forever? This question is haunting everyone in the KGF. It is no surprise, if these mines are reopened in the coming days by employing new techniques. Barring the main mines in KGF, the surrounding mines can be opened anytime.

Security and Theft

In the beginning, the police force under the Police Superintendent was guarding the mine wealth. Later, the mining company requested Sir John Lambert, a KCIE

officer to suggest ways to improve the security and to prevent the pilferage of gold. Subsequently, he was appointed as the officer to supervise the security of the mines.

Lambert realized that the gold pilferage cannot be prevented by the local guards and with the help of the IGP of the State and the Military Police, appointed 80 Punjabi Guards (retired Punjab Police & Military Personnel). These people and their descendants for the next 4 to 5 generations worked in the mines as Chief Guards. The security staff was grouped into 3 divisions; European and Eurasian officers, Punjabis and locals. Below these people were the migrants from Tamil Nadu. The Punjabis and Tamil Nadu guards were posted mostly in the mines shafts, mills and at big size machineries.

In later days, those who came from Rajasthan, Haryana and Himachal Pradesh took up the responsibility of important duties, whereas the South Indian Guards worked as ordinary security staff. Among these were the Tamilians who came from North Arcot District, Tamil Nadu. As the company grew in time, new shafts, mills, workshops and bungalows were to be guarded, so more security staff was appointed.

In 1904 AD, M. Prichard, a British officer was appointed as Chief Supervisor. After him, Arthur R. Jones, Major D.N. Fiteairn and Lt. Col. LarCombe were the important ones. In 1954 AD, for the first time after Independence an Indian by name Major K.R.A. Gowda was appointed as the Chief Officer (Gowda K.R.A. et al., 1980)¹⁰.

Some Interesting Episodes

Some of the curious episodes recorded in the entry register with the Security Forces, are as follows:

Once a group of robbers broke open a room in which drilling rods were kept and stole the rods. The thieves were caught later and they were brought to the spot. They were asked to demonstrate how they opened the lock. One fellow with the help of an ordinary safety pin opened the lock effortlessly.

On some other occasion, the security guard observed someone going up the wall of the godown and he silently opened the lock of the door and entered the godown. By seeing this, the thief went up the wall quickly and got out of the godown. He was caught later and asked to demonstrate, he showed his skill by standing at the corner of a wall and by pressing his palms firmly against the wall he went up the wall like a lizard in few seconds.

Once, there used to be a guard standing in front of a small room near the shaft, drilling rods was kept in that room. One day they opened the door to fetch the rods and to their surprise only a very few rods were remaining. The thief was caught some how and when asked to demonstrate, the small headed thief, by stretching his body, could go inside a 7 inch by 8 inch ventilator, like people do in circus.

The thieves were, very easily robbing copper, brass, steel and iron articles in

some way or the other from shafts, mills and workshops. They were caught on some occasions. The miners working in mills and shafts were inserting small lumps of crushed ore containing grains of gold and some time extracted and amalgamated gold, into their rectum and coming out. Once, a suspected miner was taken to hospital and exposed to X-rays and it was found that a 2 inch by 2 inch black material appeared on his back. When it was examined that turned out to be fine gold particles wrapped in cloth. Like this several workers were caught. It was learnt that some of the workers had injured or infected rectum. Some workers had the habit of chewing pan and also the habit of mixing gold particles with it. Someone even swallowed the gold particles and was separating it out in the next morning after taking laxatives. On many occasions the security guards were beaten and gold was taken away.

Even today, the people living around the mine dumps carry the powdered tailings to their homes and by using mercury they separate out gold. Thieves were getting into the mines with enough food and water and staying there for two or three days and nights. They were coming out only after extracting a sack full of crushed ore with gold. They were going down the mines through ladders, inclines, ropes and ventilators. On many occasions while doing so, some thieves had lost their lives.

Some years ago, when I visited my village, I learnt that a youth from my village had been hospitalized. One night, somehow he managed to get into a shaft boundary. But, the Punjabi guard on duty suspecting some movement fired towards him. The bullets had first hit the wall of the shaft, re-bounced and had pierced through his right thigh. He spent the night bearing the pain somehow and escaped before dawn and went to hospital.

Suicide Committed by White Officers

Coffee and tea were served inside to the workers. But, the British Officers had appointed some tea boys especially for their service. Once, Capt. William Richards of Champion Mines had gone down into the mines along with his tea boy. While coming-out, that boy had pocketed a lump of auriferous ore. It was detected by the security guards. But taking the lapse on his head, Capt. Richards at his bungalow shot himself and committed suicide (Ananthramu, T.R. 1999)¹.

Another British Officer had gone home on 3 months leave. He had handed over the charge to his junior and had instructed him to take care of the mines till he came back. Since he had finished his work earlier than expected time he returned back one month before time. Because of lack of experience of the junior officer, the mines had suffered losses due to negligence of workers. Pained by this, the officer assumed the responsibility for it and thinking that he could not fulfill his responsibility properly, shot himself in his head in his bungalow and died. The British administration was

sending back any one committing mistakes. No tainted officer was willing to go back to his home (Mining journals, 1936)¹¹.

Gold Stock, Currency and Inflation

Most of the world's gold is consumed in India. America and Gulf countries occupy 2nd and 3rd places respectively. Earlier, no country could print more currency than the worth of the gold in its treasury. If it printed currency more than the value of gold, it was presumed to be a sign of inflation. That means gold was the basis for the progress and development of any country. But, later it becomes a practice to reserve 40% of the total currency in gold. During some decades, due to some reasons, it was thought that in some under developed countries; at least 20 to 30% of the value of gold should be in stock of the Govt. Later on, even that practice was also shelved.

In 2013 AD, the Indian Govt. possessed 557.7 tonnes of gold according to a rough estimate; there were 20,000 tonnes of gold with Indian public and 22,000 tonnes of gold in Indian temples. The U.S has 8,133.5t, Germany 3,391.3t, IMF 2,814t, Italy 2,451.8t, France 2,435.4t and China having 1,054.1 tonnes of gold. In 1990 AD, the Gold Control Act was abolished in India. Later on some more reforms were adopted to simplify the whole process. Only about 6% more has to be paid over the international prices. With the measure, the international smuggling of gold stopped on its own. The countries which have amassed lot of gold over the years, whenever it shoots up in the market or in times of crisis, release excess gold into the international market. During such times the prices of gold plummet down. The Johannesburg mines were producing 3 tonnes per day and the profit was shared by the multinational companies owning them. This way, the advanced countries were plundering the wealth of the third world countries for centuries. India is a very populous and a developing nation. Added to that, the Indians love to possess gold, irrespective of their being poor or rich. India imports nearly 750 to 800 tonnes of gold every year. Most of this gold is used for jewellery making. Rest is used in electronics, medicine and as investments. Nearly 100 tonnes of gold is recycled every year. In India presently 3 tonnes of gold is produced from Hutti gold mine, Raichur district, Karnataka (Mining Journal, 1936)¹¹.

Since 1914 AD, as per the orders of the Bank of England, gold was sent to the Mint at Mumbai. The price had remained constant at 3.17 Pound per Ounce of gold. This price was paid to the companies in the form of Sterling. In 1921 AD, the practice of sending gold to England was stopped and it was supplied to the Bombay Market, instead. Gold Bars were transported once in 15 days from KGF to Bombay. Those days, the bars weighed 20 Tolas and 250 Tolas (1 Tola = 11.6 gm). On the bars, it was embossed as 'Indian Mines Gold' and the refined gold was sold in Bombay Gold Market through the agents. The national bank was getting 1.8% commission on this transaction. The gold business specially attracted the then Mysore Govt. As it realized

that it was necessary to nationalize the mines, it brought three companies under its control on the 29th November 1956 AD. A compensation of 164 lakhs was paid to the companies.

The stand taken by the Central Govt. about gold changed the direction of gold industry. Even after the gold mines came under the control of the Govt. of Mysore, there was not much of difference seen. Gold transaction was done in the Mint at Mumbai (previously Bombay), till 1958 AD. When the Mysore Govt. fixed the price of gold in 1958 AD, the Central Govt. had to buy at that rate. The price was 34 Dollars per Ounce or Rs.62.50 per Tola. At that rate, the Mysore Govt. was incurring losses, leading to an embarrassing situation and hence the Central Govt. came forward to own the mines. In 1962 AD, it took over the mines completely.

The finance department under the Finance Ministry was taking care of the transactions. The Mysore Govt. got Rs.305.32 lakhs as compensation for transferring the ownership. In 1966 AD the international price of gold rose steeply and abruptly. The International Monetary Fund also raised the price of gold from \$53.52 per tola to \$84.40 per tola (Rs.262.50 per tola). Added to that, the value of a rupee came down drastically. The gold Mines paid Rs.2 crore as royalty. All the mines were brought under Mysore govt. in 1956. In 1972 AD, the Kolar Gold Mines (KGM) was renamed as Bharat Gold Mines Ltd. of Central Govt.

The capital invested in that company by the Govt. was 25 crore of rupees. With this, the Govt. imposed lot of conditions on the mining company. One of them was to sell the gold at the prices fixed by the IMF, to the Central Govt. That time, the difference between the market prices and the IMF rates was huge. This difference had to be absorbed by the Central Govt. The gold transaction in 1979-80 AD, generated a net profit of Rs.377.38 lakhs. The KGF mines, in the following days became literally the 'Golden Egg Laying Goose' for the Central Govt. of India.

The gold mines were paying 5% of the profits as royalty since 1880 AD to the Mysore Govt. From 1901 AD onwards 2% cess was imposed on the profits earned from the sale of gold. When the effect of II World War was felt the Mysore Govt. imposed higher cess on gold. If the price of one ounce of gold had crossed one hundred rupees, 75% of the excessive amount would go into the Coffers of the State. In 1949 AD the price of gold crossed Rs: 306/- per ounce. This development also started yielding enough income for the State Coffers. In spite of such heavy payments, the gold mining industry was running profitably. Besides, they were also paying heavy dividends to the investors. Between 1940 AD and 1955 AD, the Mysore Govt. earned 12.5 crore rupees from the taxes on gold.

Till 1988 AD, whatever gold was produced in the KGF mines was purchased by the Govt. of India, at the rate fixed by the International Monetary Fund. Later on the Central Govt. was buying gold at the prices of London metal market plus with an additional 30% added to that. By this, the losses of BGML were reduced to some

extent. To improve its financial condition BGML was permitted to sell gold to licensed gold merchants in 1988 AD. In 1989 AD, this facility was also extended to some industrial consumers. But, the mining of gold from deeper levels increased the cost of mining and led to losses. When the market rate for 10 grams of gold was Rs.4,300, the cost of production of that much of gold was in excess of Rs.11,000/- (Mining and Mining Minerals)¹².

Journey into Deepest Levels of KGF Mines

The entire 3.23 km deep underground mines are like a multistoried complex which is 3230m high. While getting down into the mines in a steel cage through any shaft, one can experience the appearance of a flash of light at every 100 feet levels. Each level indicates one stage of development of the mines. This sort of splash of light continues till one reaches a depth of 70th level of the deepest mines in KGF, i.e., Champion Reef Mines. Then, one feels like getting into the Metro Railway station. This area is very well lighted and because of the movement of the workers it looks like the hustle bustle of a railway stations. The transporting ore moves both ways. There is a workshop to repair machineries. This workshop reminds one of a big factory. This is the picture of every level, full of activities. There is an open space where there is high tower. There are steps to go up to the top of that tower, where a cage can be seen with an open door. The steel cable winds to a giant wheel which lower the cage into the shaft. Nearly 15 to 20 persons can go down the mines easily in such cages. It can transport nearly one and a quarter tonnes of material. Such cages are there in all the mines. The name of the cage in the Mysore Mines is Edgar Cage. Similarly that of Nandidroog Mines is called Henri's Cage. To go further down, one has to walk a little across at that depth and get into another shaft.

If all the tunnels in Champion Mines are connected together they will go beyond Chennai. If all the tunnels of KGF are put together it will connect Bangalore with Bombay like a Metro train. Stratum water always percolates into the mines. In Champion Mines alone, nearly 500 gallons per day was pumped out. In 1966 it rained continuously for four months and as a result the Champion Mines at its deeper level was completely submerged and the gold production had come down drastically. By walking along the 70th level of the Champion Mines, one can reach the Mysore Mines. If one proceeds from there for 10,900 feet, he can reach the 57th level of Nandidroog Mines. Thus, this level is the longest tunnel of the KGF Mines (Ananthramu, T.R., 1999)¹.

In the dry areas of north Karnataka in Bellary, Gulbarga and Raichur Districts, the temperature reaches up to 48° C in summer. Human body system cannot adjust with this high temperature easily. When the outside temperature crosses 30° C, it has to adjust itself in several ways. In the deepest Mines of KGF the temperature reaches

60° C. The rocks at this level are so hot that the workers cannot handle them directly. To reduce this temperature, cold air is pumped in through high power pumps. It can be felt at even the 70th level. The high power pump placed at the top of Champion Mines, cools the air to 4° C and pumps in a volume of 3,30,000 cubic feet of air per minute which goes around through pipes into all the tunnels and working spots at deeper levels and comes out after picking up the heat (Ananthramu, T.R., 1999)¹.



Fig.5. Working condition in 1880 and 1980



Fig.6. Abandoned Nandidroog Mill



Fig.7. Ore hauling by steam loco in the early years.

Processing of Ore

Nearly 3 to 4 tonnes of ore have to be processed to obtain 10 gm of gold. There are processing plants capable of handling 3000 tonnes per day in KGF. The ore brought up through steel cages was passed on to the jaw crushers over conveyor belts and then it enters the conical pulverizer. The fine powder from here is passed on to the ball mill. In earlier days, they were using 4 mounds weighing steel bars for crushing the ore. The powdered ore is made to pass over an inclined table covered by woolen blankets. While passing over the flannel, the gold particles which are heavier stick to the flannel and the rest of the ore goes down the table. It is collected and once again passed over the woolen blanket on the table. Whatever remaining gold was there gets collected and only the waste powder goes out. The gold thus collected is amalgamated with mercury, which engulfs gold particles. Periodically, the amalgamated gold is put in graphite crucibles and heated in furnace at 1663°C and higher temperatures. At that temperature mercury evaporates leaving behind only gold. In the initial stages the ore was hauled by steam loco on the surface. Prior to that bullocks were used for hauling the ore to mills.

The molten gold is poured into casts to convert them into bars of specific weights. The slurry that still sticks to the woolen blankets is collected and mixed with cyanide solutions. This solution, then, is churned continuously so that a thick layer of gold cyanide forms. This liquid is then poured into lead containers. Gold becomes a black bead at this stage. The gold and lead admixture in the form of a bead is then treated with sulfuric and nitric acid and then it is mixed at required proportions with Borax



Fig.8. Gold Bullions and gold molding after heating in Graphite Furnace



Fig 9. Different stages of ore processing.

Niter, Manganese Oxide and sand. This mixture is heated in crucibles in furnaces. By this method 70% of the gold gets separated out. This is further heated in graphite furnaces and then the pure gold is poured into bars of required weights and depending on the purity of gold embossing is done. Bars of different sizes and weights get ready to be released into market for sale (Centenary Souvenir. 1980)¹³.

References

1. Anantha Ramu,T.R. (1999): Rajara loha lohagala raja. Navakarnataka Pub., Bangalore.
2. Quartz veins* (between Amphibolites and Basalt rocks).
3. Leonard Munn, Capt., (even today he is famous in this area as 'Champion of Thousand Wells').
4. Agarwal, T.P. and Margabandhu (1975-76): Archaeology Magazine, No.8.
5. Nagabhushana et al. (2008): Ancient gold mining activity in the Hutti-Maski Schist Belt. Karnataka. Current Science, V.95, No.308.
6. Indian Minerals (2008-09), IBM. New Delhi.
7. Ziauddin, M. and Narayanaswamy, S. (1974): Gold Resources of India. GSI. Series-A, Economic Geology. No.38, Part-I.
8. Brian Mason, Geochemistry.
9. Chari, K.S.R. (1985) Former Secretary. Department of Mines. Govt. of India. Bharat Gold Mines Ltd., New Delhi. P.56.
10. Gowda, K.R.A. et al. (1980) Centenary Souvenir, BGML, KGF.
11. Mining Journals, 1936.
12. Mining and Minerals, 1998.
13. Centenary Souvenir (1980) BGML, KGF.

Chapter 3

History of Kolar Gold Fields

There are many stories about the name of Kolar. It was called earlier by several names such as Kolahala, Kuvalala and Kolala. When Parushurama was destorying the army of Karthaveeraarjuna, the shouting and chaos of the soldiers reverberated by echoes from the nearby hills and that was the name of Kolar (Kolahala). When the Ganga Kings were ruling this area, they established this town. Some lithographs also suggest that this town was built by the 18th King of Ganga Dynasty called Kolahala. When their Kingdom expanded, the Gangas deserted Kolar and made Talakad as their capital. The Cholas occupied the capital of Gangas in 1004 AD. Another story is that cowherd boy called Kola found a buried treasure in the ground and Uthama, the Chola King, making use of that wealth, built a temple at the same spot and founded the Kolar town. Later in 1117 AD, the Hoysalas defeated Cholas. Before this, it appears that goddess Renukadevi appeared in the form of Kolaramma in the dream of Cholaraja and ordered him to establish a temple in her name.

This area was under the rule of Vijayanagara Kingdom in 14th century. In 17th century it was passed on to the Jagirdaars of Bijapur and later into the hands of Mughals and Hyder Ali became the Faujidaar of Kolar. When Tipu Sultan died in the war of 1799 AD, Dewan Poornaiah looked after this area for some time. Later, this area came under the control of the Mysore Kings. Between 1862 and 1867, Mr. Bowring was the commissioner of this area and introduced several reforms.

Kolar is located at about 70 km east of Bangalore. From here for about 30 km south, is the world famous KGF situated. This area got the name KGF only when the European explorers came here in search of gold. Very recently, after the establishment of BEML factory in 1960, the number of Kannada speaking people increased and thus got the name Kolara Chinnada Ganigalu (ko.chi.ga). As the township grew since 1880 AD, with the blooming gold mining, new extensions called Robertsonpet, Andersonpet and Oorgaumpet came into existence (Seetharaman, K.S., 1989)¹.

Kolar Gold Field (KGF): Is located between 12°54'53" to 12°58'30" N Latitude

and $78^{\circ}14'33''$ to $78^{\circ}17'32''$ E Longitude. It is located around 900 m (3075 feet) above MSL. The KGF area is surrounded by gentle undulating topography and towards south, Yerrakonda hill is there, which gets the name because of red coloured banded iron formations. The Byatarayanawamy temple is there on the top of the hill at a height of 3351 feet above MSL.

The KGF is located at the tri-junction of Andhra Pradesh, Tamil Nadu and Karnataka. This town was known as 'Little England' when the Mines were in full swing. The people living in the villages around KGF are basically Telugu speaking populace. As the local Kannada and Telugu people were hesitant to take-up underground mine works, most of the Tamilians came and settled here as mining workers (Seetharaman, K.S., 1989)¹.

Lt. John Warren

The first written document about mining in KGF area is of 1802 AD. Even the Britishers did not have a clear idea about the previously well known Mysore Mine. The British East India Company appointed Lt. John Warren of HM 33 Regiment to survey the eastern border of Mysore after the death of Tipu Sultan in Mysore War IV. Warren started his survey work from the Yerrakonda hill.

Warren in his survey included this area into the territory of Mysore State. That time, this area was under Madras Presidency. If he had slightly put the border towards west of the present one, then, Karnataka State would not have earned the name of the land of gold! That would have gone to the wealth of Tamil Nadu. Although Warren was not a geologist by profession, he documented every detail faithfully as he observed. When he reached Yerrakonda, he heard the news of the occurrence of gold in Oorgaum and Marikuppam areas. He published a detailed article about gold mining in London's Royal Asiatic Journal.

The villagers around KGF were extracting gold from the quartz veins occurring in the dark colored rocks. When Lt. John Warren decided to examine the ore lying around ancient Mines near Marikuppam, 12 laborers called 'Theru' and 'Thedu' tribes came forward to work for him. The wage was one silver coin per day for three laborers i.e., one *Kantharaya* coin. For working 12 days inside the Mines it was costing 3 *Kantharaya* worth kerosene oil, 2 *Kantharaya* worth spade and crowbars, 1 *Kantharaya* worth pot, basket and rope. They produced 30 *Pagoda* gold by spending for a month (one *Pagoda* is equal to a gold coin). Those days, a group of 10 - 12 laborers were working together and were descending down to 30 feet. The women were usually engaged in panning the crushed ore and in separating the gold (Seetharaman, K.S., 1989)¹. After knowing this development, many investors came forward to invest money here, from many parts of the world. John Warren issued a statement, announcing reward for anybody showing the occurrence of gold in the

area. The Dalit laborer from Oorgaum showed him rock piece with gold and promised to show gold from other places. After that Warren engaged local laborers for extracting gold by panning the soil and when he went to that area, observed a shaft about 30 feet deep. He got down into that shaft and could observe tunnels in north-south direction. The ore from that depth was brought to surface. It was crushed and processed by women laborers and the gold was obtained.

In 1789 AD, Tipu Sultan had sent one Brahmin and asked for the details of gold mining there. That Brahmin, it appears, told him that it would require more money and it would be better to purchase gold (Seetharaman, K.S., 1989)¹. Then, John Warren met the Amaldaar in Bethamangala village and discussed about survey work and the occurrence of gold. The Amaldaar told him that he knew about it earlier. Later to that John Warren met Lord William Bentinck, Viceroy of Madras Presidency, who suggested him to meet Mr. Webb, British Residency in Mysore Durbar. After meeting Mr. Webb, Warren got into exploration work.

As gold is a dense metal, people knew the technique for looking for gold near shaft or streams and they were separating gold by panning. The *Jalagara* community members were doing it nicely. Generally, the supervisor of the panners was guiding them to work along the tracks of peacocks thinking that gold trail follows that. Actually, the locals were not showing the sites of gold mining to Govt. officers and were hiding the information about mining. In the beginning the locals did not show the sites of gold occurrence to Warren also. Besides, during those days, the cost of the material used for gold mining was exorbitant and hence it was not attractive.

A small pit could be excavated if 12 people could work for a day. John Warren sent the gold that he had collected to Madras to know its purity. After examining it, the Madras treasury informed that it is an excellent quality of gold. Warren firmly believed the auriferous tract had extended beyond Marikuppam mining work. But the Govt. did not show interest in it. After learning that gold mining was going on secretly, Commissioner Mark Cubbon issued an ordinance to stop it*².

Michael Lavelle*³

There is an inseparable relation between gold in Karnataka and army officers. The news of collection of gold by John Warren near Marikuppam reached an Irish soldier called Michael Lavelle³, based in Bangalore. He had taken part in 1864 AD Maori Civil War in New Zealand. While in New Zealand he had learnt about gold mining and after the war ceased, he came to Bangalore and settled. After learning that gold occurs in KGF area, he went there in search and to try his luck. He wandered all over KGF area silently, collected all the information and returned to Bangalore. He submitted an application to the Mysore Govt., for permission to mine coal and not for gold. On 14th April 1874 AD, the Govt. permitted him to mine only for coal. The

Government knew that coal does not occur in this part of land, and had realized that Lavelle had planned to cheat the Govt. As the intention of Lavelle had been to mine only for gold, he did not accept the permit given by the Govt. and entered into a prolonged correspondence. Finally, on 22nd February 1875 AD the Mysore Govt. permitted Lavelle to do gold mining. In this permit, he was allowed to mine for 3 years over 2 square miles at 10 places. After that, at each of the sites, he got the right to obtain lease for 20 years. To get this mining right, he had to come to Bangalore several times. Lavelle had to face lot of difficulties and financial crunch. In the book written by F.A. Perry entitled, 'Living dangerously', the work of Lavelle has been described memorably.

Mervin Smith

Having seen and experienced in his observations of the gold mines in many countries, Mervin Smith visited India to see these ancient mines. After that, wherever he went, he spoke about KGF which attracted many companies to KGF.

Kolar Concessionaries

Although Lavelle was after gold for a long time, somehow he changed his mind and transferred his rights in 1876 AD to Gen. D.L. Birasford of Stefcarts, Madras and Mc Kenji of Arbuthnath Co. Next year, Mc Kenji transferred the rights fully to Birasford. Then Birasford formed a Syndicate called 'Kolar Concessionaries' and invested 5000£ on it. This Syndicate appointed two mining experts from Australia and started the mining operations. But, the capital invested dwindled very fast. Mining was continued by raising some more capital and it was satisfactory. In 1879 AD, it yielded good quantity of gold. Encouraged by this, the Oorgaum Co. of Madras came into existence with an investment of 10000£. By knowing this development, many people who had burnt their fingers by investing in Wynad, started rushing towards KGF.

In 1880 AD, Mysore Mines Co., began with an investment of 135000£ and Nandidroog Co., started with 100000£. Their transactions were done in London. Altogether a capital amount of 1200000£ was invested in 11 companies. The Oorgaum Co., in December, 1880, produced 42 ounces (One ounce gold is 28.35 gms)⁴ of gold by crushing 20 tonnes of ore and thus began the odyssey of gold mining in Karnataka.

John Taylor – III: Father of Modern Gold Mines

John Taylor-III of Britain is the father of modern mining. The KGF operations had reached a stage of bankruptcy in a few years after it began. In the shareholders

meeting held at a hotel on Connaught Street, London, there was a stage of closing down the Mysore Gold Mines. The capital remaining at the time was only 13000£. But, the director of the Mines, John Taylor, instead of allowing the distribution of the balance amount, suggested subjecting the Mines to a detailed study. Captain Plummer, a mining expert, was also present in that meeting and he presented some of his new ideas. He succeeded in convincing the share holders to continue the operations and told John Taylor that bright days for KGF were ahead. Later John Taylor brought Capt. Plummer and mining engineer W. Bel Davis to KGF. That time they examined the Balaghat Mines, they could see the occurrence of auriferous quartz.



Fig.10. John Taylor III. Founder of the Mining Industry in Kolar Gold Fields

In Mairkuppam ancient mines, at a depth of 173 feet, Capt. Plummer suggested to open a drive in the direction opposite to that already existed. That drive was leading to another ancient mine. Actually, the stone support pillars that were not stooped out to prevent the roof collapse had yielded 4 ounces of gold/ tone. That was mined out and the mines were further deepened. From here onwards the door of gold fortune of KGF opened up. By the end of 1885 AD, nearly 6000 Ounces of gold worth 24000£ were produced from this mine. In 1902 AD, John Taylor retired and on that occasion a Coffee Cup of Gold weighing 50 Ounces was presented on behalf of the company.



Fig.11. Champion reefs mine shaft

Little England

The Britishers called KGF as 'Little England' because of its cool climate and England like geography. KGF gold was also responsible in a way, for the epithet 'Empire without Sun set'. That means KGF gold was responsible for the supremacy of British Kings and Queens all over the world. The people who took it out of bowels of the earth were the Dalits of the KGF. For more than a century, these people had carried the Kings and Queens of England in a golden Palanquin all over the world. It is a coincidence that the British Empire, after granting Independence to India lost its supremacy elsewhere in the world in the later years. Over all, it can be stated that the KGF gold was responsible to some extent for the growth and development of Britain. As per the records, the amount of gold carried to England was 650 tonnes out of the total production of 830 tonnes.

Sir Haji Ismail Seth

He was supplying all sundry items to the British homes in the beginning from his England warehouse behind the railway station at Champion reef mines. All sorts of clothes, fancy items, liquor, electronic and other articles were coming from England. He constructed mines quarters on contract basis. He made enormous profits out of this business and with that money he had constructed a TB hospital in Indiranagar, a Mosque near Whitefield in Bangalore, a Kannada medium school and a public play ground in KGF. During the great famine of 1895 AD he had opened relief centers in KGF. He had imported grains from other countries at a lower price

for distribution to the poor. It is said that, although Seth was illiterate, he was able to speak 13 European languages and all Indian languages. He was honored with a knighthood and several other titles. He breathed his last in 1940 in his own hospital at Madanapalli, Andhra Pradesh.

Early Days of the Mining

At the beginning of modern mining in KGF there was no basic facility available. Fundamentally, there should be availability of light and air inside the dark mines. As the mines deepen, the oxygen content in the air reduces and the pressure increases. For this reason, on an average, 1° C temperature raises per 100 m increase in depth. In the beginning the workers were working without upper clothes in the mines under dim light of castor oil lamps. They were breaking the quartz reef with chisels only. Later, they made holes into which gun powder was filled and exploded to break the rocks. Later, in place of oil lamps, they used candles, then carbide lamps and finally battery linked headlamps fixed to the helmets came in use.

An Ancient Tunnel

Gradually, hospital, school, college, library, play grounds were constructed for the workers. At any time in KGF, no one below the age of 18 years was allowed to work in the underground Mines. To test if there were any poisonous gases inside the mines, they were carrying pigeons in cages / baskets into the mines and after one hour they were brought to the surface. The workers were allowed inside the mines only if the pigeons came out alive. The contractors had not fixed any particular working hours. Usually, the workers were sent inside in groups before the dawn and they were coming back only by the evening.

Those days, the iron buckets carrying men and ore were not safe. The iron cages and the steel cable came after several years. The workers were always haunted by the fear of rock burst. It was more dangerous as the workers were not properly trained in underground mining. The contractors and supervisors were more concentrated on the work rather than the safety or any mining laws to safeguard the interests of the miners, even if the workers were involved in accidents or even lost lives, there was no compensation or relief provided.

Mining work is a tough job. It is a dark world inside the mines. There are hundreds of tunnels, many kinds of complex equipments, machineries, electric generators, cooling towers, high capacity pumps, air compressors, electric cables, water pipes, ventilators, etc., in the mines, where thousands of workers would be working for winning the grey auriferous quartz occurring in hard massive amphibolites.

Before doing all such jobs, shafts have to be sunk to various levels and lined



Fig.12. Tunnels with wood and iron rails support

with wood or bricks. Some of the shafts were the deepest in the world. At every 100 feet downwards there are different levels from where various tunnels open out in various directions. As the tunneling proceeded, iron and steel strips, rivets and wooden logs were placed against walls to prevent any collapse. Standing above the shaft, over ground, are the giant steel towers with rotating wheels lowering or pulling up strong thick special steel cables attached to cages. These cages were moving up and down continuously day and night carrying either the workers or the machinery. Also, they were hauling up thousands of tonnes of ore to the surface every day from underground.

Crawling and kneeling in the dark underground, working under dim candle lights, carbide lamps / head lamps & whose streaks of light cut through the pitch dark inside the mines, the workers perspire profusely and break the auriferous ore by exploding the quartz veins into which holes are drilled and filled with explosives and then exploded. They grab the rock boulders and fragments to fill into trolleys which move on narrow rails. In the beginning, the ore was transported by bullock carts to the mills. Later, electric trolleys were used and new mills were established.

Although cold air was pumped into the underground mines by the time that air reached the tunnels, it would be 55°C . Actually, the shafts and the cages were not reaching the actual work spot at any of the shafts. The mines were always in progressive stages of development. The workers, in the deeper levels, had to reach the work spots by using buckets, ladders, swings, cradles, etc., and had to pass through narrow crevices, openings, and dripping hot water. While doing all this, sometimes they were hitting against low roofs or falling rock fragments were hurting them or they were

slipping on smooth rock surfaces. It was common with workers to get injured or die in such accidents.

Many workers died in accidents caused due to operation of machinery by untrained hands, due to collapse of rocks, rock bursts and other careless acts of workers. Later, with the cooperation of the workers and by talks with officers, several precautionary steps were taken. In 1898 AD, the State Govt. and the mines administration framed some safety rules. But, it came into effect in 1932 AD. Britain had adopted the safety rules in 1842 AD, after so many years, the British adopted the mines agreement for the first time in 1901 AD in KGF. Although India was under the rule of the British, the Mysore State was under the rule of Kings. Mysore State adopted the mines safety law for the first time in whole of the country.

This law was adopted under the purview of the Mines and Geology department. One officer from this department was nominated permanently in the KGF. As the days rolled by, new rules were incorporated and more and more officers and assistants were appointed. The main officer was designated as Chief Inspector of Mines and exploration. For the first time in the country, all the workers in the Mines were provided the safety helmets, boots, spectacles, uniform, etc. Big size fans were fixed at prominent places inside the mines.

Following the list of accidents taking place in the Transvaal Gold Mines of South Africa, a similar list was prepared in KGF also. Both were compared and in this regard, the Mines Inspector, Dr. J.W. Ivans has Stated that 'The African workers are able to produce more work with their physical strength as they are less literate whereas the KGF workers have maintained higher skills and efficiency. Added to that, the number of accidents here are also less'. When the country got independence, thereby ending the rule of the British, the mines safety laws came under the control of the Govt. of India. In 1952 AD, a Zonal Office was started in KGF and a Chief Inspector was appointed. Later, this post was redesignated as Chief Inspector of Mines.

Among all the mines in KGF, the Champion Reefs Mines are the deepest ones and are deepened up to 3230 meters. All the shafts, tunnels, winzes and raises put together would run to 1647 kms. The interconnecting channels from one tunnel to the other run to 200 kms. There are 55 shafts surfacing out, where as there are 26 shafts inside. All these mines are spread over an area of 8 km in length and 2 km in width from level of 100 feet below the ground. Only about 100 feet overburden is left at the top. If one goes down the Golconda Mines in the north, he can come up through the Mysore Mines which is at 8 km towards south.

Early Stages of Mine Planning

Initially, from Bisanattam in the south to Krishnapuram in the north, 40 ancient mines were identified. They were grouped into 5 zones. Their extents on the ground

and inside the ground were demarcated. Then, separate machinery, head gear, mills, laboratory and separate management were allocated for these mines. Roads were laid to connect all the mines. These roads were named after British Officers and Share Holders. In 1899 AD Col. Mark Cubbon laid the railway line between Bangalore and Jolarpetai and established a railway station near KGF. This station is today's Bangarpet junction. This town also got its name after Levin Bentham Bowring, the Commissioner who was administering this area. It was called Bowringpet during those days and became Bangarpet later.

The machineries which arrived from England were transported from Bangarpet and Kamasamudram Railway Stations to KGF by steel strip laden carts pulled by tens of bullocks. The mining work started with the sinking of shafts. Above the shafts, the head gear was made-up of teakwood. Initially, the shafts were in the form of inclines and it was very difficult to transport men and material up and down. Later vertical shafts with 18 feet inner dimensions were sunk. The ore was transported inside the tunnels by small trolleys and then hauled up. The material required for the construction of the mine such as iron, steel, wood, coal, lime; building materials were procured from different parts of the country. But the machineries, food items, clothes and liquor used to come from England.

How to proceed with the mining? Where to excavate? What type of material should be used as support for preventing rock & soil fall? Not knowing exactly such techniques, many accidents took place in which hundreds of workers died. In 1897 AD, in a shaft named after John Taylor, 52 laborers died due to wall collapse. It took several days to extricate the bodies. That shaft was closed for several months. The family members of the deceased used to sit around the shaft crying all through the day.

Nobody turned up for work after this tragic incident. The company incurred heavy losses due to this and attempts were made to bring laborers from China, South Africa and Zambia through agents. These agents were supplying workers to the colonial setup all over the world. After knowing that workers from outside were coming to KGF, the local workers reluctantly returned to work. The arrival of Chinese and South African workers was stopped. In case all of them had arrived in KGF, successively, Indo-China and Indo-African species would have taken birth in addition to Anglo-Indians!

Struggle with Heat

With every 100 feet descent down the mines, the temperature increases by 1°C. At the bottom of the mines i.e., at around 10000 feet, the average temperature is 71°C. It is almost impossible to work under burning conditions. Cool air was pumped in through pipelines from high capacity compressors. But, that air itself used to get

hot by the time it reached those depths while passing through various hot levels and through bends in tunnels. Many workers were fainting due to excessive perspiration, heat and exhaustion. Many accidents took place due to this reason also. The awareness about mine safety started only after 1937. In that year, L.H. Meghalagan had made a documentary on the KGF workers in which the safe ways of going down, working in the mines and returning back safely were shown.

In fact, long ago, about 2000 years back Roman Officers had thought of this problem as to how the body can adjust to higher temperature under various conditions. Hippocrates had also tried to explain the difference between body temperature and outside temperature. In 'Metallica', the first volume on mining science, Agricola De Re has written that there should be good air and resting places for miners in the mines.

It was discussed in the early 19th century, about the level of humidity in the factories. It was determined in the early 20th century about the level of humidity under which one can work comfortably. As the mines are deepened, the temperature increases. Because of human exhalation, oxygen gets converted to carbon dioxide. Temperature also increases inside the mines due to rock pressure. In KGF, it increases by 1° F per every 170 feet up to 5000 feet level, whereas from 5000 to 9000 feet levels, it increases by 1° F per every 115 feet (Sengupta, B.K., Heat stress in Mines)⁵.

Even a man when sitting idle various processes are going on in the body and when he does hard job more heat is produced. During ordinary times, the heat level is 2500 to 3000 k.cal and while working hard it reaches up to 6000 k.cal, when the body



Fig.13. First generation of workers and working conditions

heat does not disseminate from the body the temperature increases by 1°C per hour. The normal body temperature of human beings is 37°C. As the heat emanates from the worker's bodies the heat increases in the surroundings. The blood absorbs the inner body heat and the blood heat passes on to the skin. Lastly, the heat of the skin leaks into the atmosphere. Heat comes out during exhalation also. All these causes put together, the temperature in the mines goes up.

When more heat is generated in the body than the normal, the skin usually conceals it from going out. Then the body increases its temperature to bear the cold. The body temperature doesn't increase when the temperature of the work place is between -4.4° to -3.3°C, but, if one remains there, then the body temperature increases by 37.7°C. Then, he has to leave that place. Under, these conditions, working for 8 hours is pitiable. According to Caplan and Sinsay's research, the level at which the local workers work, is as follows (Seminar, Vol.2).⁶

Temperature		Efficiency of work in hours
From	to	
30.2	29.6	80 % hours
32.5	31.2	90 % hours
33.7	32.2	70 % hours
34.7	33.0	60 % hours
35.5	34.7	50 % hours
36.2	34.3	40 % hours
36.7	35.9	30 % hours
37.2	35.3	20 % hours
37.2	35.8	10 % hours
37.2	36.2	00 % hours

Under 37.7°C conditions, the laborers can't work for more than one hour. When one has to work under these conditions, Caplan and Lindsay have suggested in the above report that the worker should be given mineral admixed saline water. But the KGF companies did not give it at any point of time. The tonics that the workers were getting were not more than arrack and boiled Rice Water.

P.Bosworth Smith (1888 – 89 AD)

John Warren learnt in 1902 AD, while surveying the ancient mines in Oorgaam and Marikuppam areas that the Paraiah Community (Untouchables) had done the 160 feet deep mines (Bosworth Smith, P., 1889)⁷. There are illustrations to say that Tipu Sultan attempted mining of this area and later abandoned it.

Three important lodes were identified in KGF; these are Champion, Oriental and Oriental East. Hundreds of shoots (quartz veins) and pipes (quartz veins) are

there in between these lodes. P. Bosworth Smith (1888-89), conducted survey over these lodes including mineralization of hundreds of pits, deep shafts and tunnels done by locals (Bosworth Smith, P., 1889)⁷. He also surveyed the area from the north of KGF to today's Andhra Pradesh and old Madras Presidency's North Arcot and Salem Districts. He has documented hundreds of pits, adits, shafts, etc., systematically over two years. He has especially recorded tunnels and stopes. All these are found along the breadth of the green schist rocks over which dense forest, hill ranges and nala tracks are seen. Various village names are intertwined with gold occurrences here such as: Kangunda, Bisanattam, Chigaragunta, Mallappanakonda, Guvvalaguntha, Malavanakothuru, Yerrakonda, Balghat, Nandidroog, Oorgaum, Mysore Holagamadikonda, Gangamma, Gudighatta, Athinatham, Naremmanakonda, Gowdasani, Marimanakonda, Garidikonda, Adakonda, Vepanapalli, Kothuru, Nandimadugu, Chiguramarganahalli, Gulagunturgudda, Sakalaguntha, Karikuppam, Bangaraguntha (Bosworth Smith, P., 1889)⁷, etc. Even today plenty of rocks and soil debris are seen around these old workings which are actually the dumps after the ore is washed and gold extracted. All these names are found in the records of Smith. When all these names are analyzed, one can see that all these are predominantly Telugu names. There is some confusion about names like Balaghat, Nandidroog and Oorgaum.

One segment of the auriferous tract extending up to Yerrakonda gets divided into two parts and disappears after some distance in the gneissic rocks. Another branch had extended up to Mallappanakonda and then disappears amidst gneisses. When the Britishers began mining, initially they had thought of sinking shafts in the ancient workings. If they did not get gold in the first hundred feet, they had planned to open cross-cuts in east and west directions. When they sunk new shafts, most of the times they did not get auriferous quartz. They had to locate the quartz reefs first on the surface and then had to deepen the shafts. By that way, lot of time was wasted. As the quartz reefs were concealed under soil, most of the times, it was very difficult to locate the shafts. Lot of time and money could be saved by locating the right reef at the right place and then sinking the shaft. After sinking the shafts and then tracing the auriferous reefs, big machineries were lowered into the mines.

Bosworth Smith in 1898-89 AD described in his report about the implements that he could recover in the ancient mines. Mr. William Frenchville could collect an iron implement about 11 feet long, with a hole on top. Its head was broken. It was not clear for which purpose it was used. Probably, they inserted a wooden stick and used it for grabbing soil. Another, implement was recovered from Oorgaum mines which was a heavy hammer. It was crushed at its head due to several beatings. Hundreds of pottery fragments were recovered especially in these shafts where plenty of water had accumulated. Several wooden logs were recovered from Mysore and Oorgaum mines. They had turned strong and become black and looked like Abasani wood. Along with them several forked sticks were also found (probably these were used to

prepare *ragi mudde* which are the staple diet of Mysore State). Even today it is used in this area. Along with these articles, charcoal and ash were seen everywhere. From these things one could deduce that they had employed the technique of setting fire and then cooling it by water.

When the ancient mines at Sakaluguntha near Malur were cleaned up, they got ash, charcoal, some bones and one old oil lamp with a wooden handle at a depth of 30 feet. This lamp resembles the one used even today in villages (Bosworth Smith, P. 1889)⁷. Two pottery fragments were recovered from Oorgaum mines. One of them had gold dust sticking to it. Probably, it was left as such after extracting gold by using mercury. Above all these things, it appears that they had developed the mines systematically by observing the pattern of shaft sinking.

One other problem that they encountered was, when more water entered the shafts, there was no suitable arrangements for dewatering. They were going in search of some other reefs when the water problem and the ore shortage appeared. These ancient mines were sunk in hard rocks up to 160 feet depth. Actually, the British and Italian workers were able to dig only 2 feet per week. Even if the rocks were drilled, they could dig only 5 feet per week. But, after seeing the innumerable pits and shafts in KGF, anybody would be wonder struck (Bosworth Smith, P., 1889)⁷.

It is a common practice to leave a wall like partition when large pits are dug up. It can be seen in the deep shafts also. This is a technique used to withhold the wall collapse. Added to that, there would be air circulation and also help in dewatering. It is easy to set the inclined rocks on fire rather than on flat rocks. The heat sets in quickly. It appears that they had opened length and breadth wise shallow shafts rather than deep ones. No doubt, the British converted the ancient mines of KGF into modern mines of the world, but one thing is certain that all of their mines were based on what the ancient had left. They couldn't identify even one new mine apart from or away from the old pits. That only means that the locals had already excavated all the exposed and covered auriferous reefs. We must marvel at the skill and ability of ancient Indian workers.

Mining Companies

P.Bosworth Smith in his special report on the gold mines operated by British Companies during the period between 1888-89 had recorded all the details pertaining to depth of working, shafts sunk and about the number of drives made and also about the total gold produced and exported to Britain with details of cost of production.

Nine Reef Gold Mining Co.

Shafts: Main Shaft: 254 feet, Benard Shaft: 182 feet, Morisson's Shaft: 142

feet, Vyan Shaft: 158 feet. Total drives and cuts: 992 feet. Gold sent to England up to February 1888, 176 Ounces. Monthly expenditure is Rs.13, 000.

Balaghat Gold Mining Co.

Shafts: North Engine Shaft: 365 feet, South Engine Shaft: 245 feet. Other 5 shafts were there. They were closed. Total drives and cuts: 1657 feet. Monthly expenditure is Rs.13,000.

Gold Fields of Mysore Co.

Extent: 13 Sq.km, 7 shafts: Main Bridge Shaft: 101 feet, Middle Shaft: 152 feet, Hill Shaft: 110 feet, North Shaft: 130 feet, Coromandel Shaft: 115 feet, Prospect Shaft: 83 feet, Road Shaft: 117 feet. Monthly expenditure is Rs.8000, cost of production.

Nandidroog Gold Mining Co.

Shafts: Webb's Shaft: 342 feet, Taylor's Shaft: 300 feet, Total Drives and cuts: 23000 feet. The amount of gold sent to England: 2646 Ounces. Monthly expenditure is Rs.8000.

Oorgaum Gold Mining Co.

Shafts: Probin's Shaft: 196 feet, Lose Shaft: 270 feet, North Batheny Shaft: 127 feet, Mandi Shaft: 212 feet, Drives and cuts: 1381 feet. Monthly expenditure is Rs.15, 000.

Mysore West and Mysore Gold Mining Co.

Shafts: Walker Shaft: 225 feet, Ventilation Shaft: 159 feet, Tank Shaft: 50 feet. Out of other 6 shafts, 4 Shafts: 100 feet, 2 Shafts: 69 and 55 feet. Monthly expenditure is Rs.6,000.

Eastern Mysore Gold Mining Co.

Shafts: Rennies Shaft: 112. Mysore Shaft: 60 feet, Norah Shaft: 87 feet, Thomas Shaft: 86 feet, Hemmerson's Shaft: 76 feet. Drives and cuts: 1360 feet. Monthly expenditure is Rs.7, 000.

Mysore Gold Mining Co.

Shafts: Shefford's Shaft: 152 feet, Foss Shaft: 220 feet, Mc Tugget's Shaft: 152 feet, Blaire's Shaft: 134 feet, William's shaft: 173 feet, Phimmer Shaft: 362 feet, Footway Shaft: 135 feet, Taylor's Shaft: 444 feet, Henry's Shaft: 113 feet, Tenants Shaft: 135 feet. Drives and cuts: 16200 feet. Monthly expenditure is Rs.16000. Total of 70000 sq ft of rock has been excavated. Gold sent to England was 39432 Ounces.

Indian Consolidated Gold Mining Co.

Shafts: Davis Shaft: 45 feet, Number Five Shaft: 250 feet. Drives and cuts: 1200 feet. Monthly expenditure is Rs.13, 000. Gold sent to England was 818 Ounces.

Kolar Gold Mining Co.

Shafts: Lops Shaft: 170 feet. Darlington's Shaft: 168 feet. Underlie Shaft: 1170 feet. Prospect Shaft: 440 feet. Monthly expenditure is Rs.3500.

Mysore Reefs Gold Mining Co.

Shafts: Cocksburns Shaft: 282 feet, Harvest Shaft: 245 feet, North Shaft: 282 feet, Taylor's Shaft: 122 feet. Monthly expenditure is Rs.13, 000.

As per the details furnished above, mining was going on in full swing in 48 shafts in 1888-89. Such an authentic report about any gold mine is rare and this is only one of its kind, and we can gather from this observation that there is no authentic scientific document available for any of the gold mines in hundreds of years in our country. The British brought with them, the concept of planned and systematic mining. As they represented an international company with experience in underground mining, they embarked on researching and documenting everything. With that, modern equipment, machinery, implements and technology also came into India. The KGF gold mining developed as a model mining industry in India and the world.

References

1. Seetharaman, K.S. (1989) Kolar Thangavail Varalaru, p.97.
2. Cubbon Park* of Bangalore is named after him.
3. Lavelle roads* are there in Bangalore and KGF.
4. One ounce gold is 28.35 gms.
5. Sengupta, B.K. (1928) Heat stress in Mines. KGF Mining and Metallurgy. Quarterly Bulletin. (KGF Bulletin) p.238; p.437.
6. Seminar on Recent Trends in Gold Mines Practice, Vol.2.
7. Bosworth Smith, P. (1889) Govt. Mineralogist to the Madras Presidency. Report on the Kolar Gold Fields and its southern extension.

Chapter 4

Decline in Fortune of the KGF Company

The Kolar Gold Mines gradually faced dwindling profit in the aftermath of the two World Wars. As the mines reached deeper levels in 1960, small losses began to accrue. There was decline in gold production. This led to the appointment of permanent workers and reduction in the number of contract workers.

Another important reason for decline, in addition to the above reasons, is the perceived corruption within management. Whenever corruption instances by officers increased, the management was taking the decision to reduce the strength of the labor force. All managerial directors joined together to begin a consultative division and they slipped out by asking the company to get solution from them. That means, the Indian officers, who took over the administration from British management, did not make any tangible attempt to overcome the losses incurred by the mines. After India gained independence on the 15th August 1947 and immediately after the accession of the Princely State of Mysore to the Indian Union and prevailing nationalistic fervor there was a public clamor for Indian ownership of the company and to have the full benefit of gold deep in the mines. During the tenure of K. Hanumanthiah, Chief Minister it was decided to nationalize the mines and the process was completed in 1956 during the time Shri S. Nijalingappa, who had by then assumed charge as the Chief Minister of Mysore. The Kolar Gold Mines were handed over by the John Taylor & Co. to the Govt. of Mysore on the 28th November 1956, and the new Indian company started functioning with the name 'Kolar Gold Mining Undertaking'. Thus after 76 years of working on the Kolar Gold Mines, the John Taylor & Company relinquished its control over the mines and passed into history.

The gold mines, under the John Taylor & Company, were already showing declining trend in production as the mining operation at deeper levels was becoming expensive in relation to gold production. The Company could sense the nationalistic mood in the aftermath of the Independence of India, and therefore, were reluctant to invest further in the exploration work and were resorting to reduction in the number of contract workers. With the enforcement of Gold Control Act in 1960 the Finance

Ministry, Govt. of India took over the mines and gave the national Mint the exclusive rights to all gold from Kolar. The 'Kolar Gold Mining undertaking' had retained the consultancy services of the John Taylor & Sons. The new management, from the time of nationalization of the gold mines, was not able to maintain profitable production and was only reporting regular losses. It seems gold worth Rs.20 crores was extracted between 1956 and 1962. The State Govt. gradually realized that it was not capable of managing the Mines. At this time the Govt. of India stepped in and by 1972 established the Bharat Gold Mines Limited (BGML) under the Ministry of Mines and the Kolar Mines were handed over to the BGML to be run as a Public Sector Undertaking of the Govt. of India. By that time the last three remaining mines viz. Mysore, Champion and Nandydroog were already beginning to run their course. During the next 20 years the miners had to go deeper and deeper for the remaining gold until the Champion Reefs mine became the second deepest underground mine in the world when its mining operation reached a depth of 3200mts. The grade of gold ore also started steadily declining from the once amazing 14 g/t to <4g/t. By 1992 the net worth of BGML was fully eroded. By 1998 the reserves came close to exhaustion and the cost of extracting gold exceeded the price of gold by more than ten times. Several studies carried out by experts concluded that the time had come for KGF to pass into history.

Glory Days

The Kolar Gold Fields, collectively comprises three mines, viz. Champion, Mysore and Nandydroog. Of these Champion was one of the largest and deepest Gold Mines of the world and the only recognized gold mine in India. Because of these mines KGF has several firsts to its credit. In 1894 KGF was the first to get a meter gauge rail connection to Bangalore. In 1900 the Cauvery Power Scheme was inaugurated and KGF became in 1902 the first town in South India to get hydro-electricity from the Shivanasamudram dam. In 1902 the town of Robertsonpet was established to house the related tertiary sector populace. In 1903 the Bethmanagala Lake was created as a source of drinking water for KGF and the surrounding townships. Mahatma Gandhi visited Kolar in 1942 as an important stop for the Quit India movement. KGF (Kolar Gold Fields) was always on the top of the list, crowned as one of largest Gold Producers in Asia and the sole gold mining operation in India. In its glory days KGF was the most important source of gold first for the British Raj and then the Govt. of India.

Silicosis, Health Care and Human Rights

After the beginning of large scale mining, the workers at KGF became prone to various diseases related with breathing and lungs. Silicosis was one of them. It is a

progressive disease affecting the lung and is caused by inhalation of the fine silica dust from the mines over many years. This disease was identified and diagnosed in the workers of the Kolar Gold Mines immediately after BGML took over operations in 1972. Treatment of silicosis was taken up as a health care priority by BGML and the disease was successfully tackled and preventive measures put in place. BGML ran a multi discipline hospital and polyclinic for its employees and the local people and concentrated efforts were made to diagnose and treat miners for all mining related ailments. With the closure of BGML the hospital also closed down and much suffering resulted. Recently, a local NGO, run by a well known philanthropist from the area, decided to intervene and it is currently in the process of reopening the hospital.

The devastating effects of the closure of BGML on the township of KGF and the lives and health of its people have been starkly brought out in the PUCL Bulletin of May 2004 which carried a Report by Justice H.Suresh, Dr.Jeevan Kumar, Geetha Menon, and Advocate Manohar Hosea after a Public Hearing on “Violations of Rights of Workers at the Kolar Gold Fields”. The public hearing was organized by the South India Cell for Human Rights Education and Monitoring (SICHREM) on 21 February 2004. Earlier, in a brilliant article published in the Liberation (2001), N. Divakar had brought out in graphic detail the comprehensive misery inflicted by the Govt. and the management on the ex-employees of BGML (The Decay of a Public Sector Mining Township – Social Investigation). This has been further elaborated upon by Parvathi Menon in the Frontline magazine (Volume 19, Issue 11)⁶ of May 25 – June 7, 2002 in an article titled “Death of a Mine” in which, she describes in chilling detail the descent of the thousands of ex-employees of BGML and their families into indebtedness, destitution and death by suicides.

Closure

Although the mines were formally closed in 2001 the history of closure goes back to 1992-93 when the formal decision to close down the mine was taken by the Govt. of India on the basis of the K.S.R. Chari Committee Report. The report stated that not only were the reserves close to exhaustion but the company which had been making losses from the very beginning (1972) could not be turned around as a viable operation and could only survive with continuous and heavy subsidies from Govt. In fact from 1992 itself the company was surviving with the help of subsidies from GOI. Several other studies undertaken subsequently confirmed these findings. In 1998 the company was referred to BIFR for closure. A bitter struggle between the unions and management ensued. The unions were keen to save the jobs of their 3000 members and Govt. was bent upon closing down the operation which required continuous support from the tax payer. The unions lost in both BIFR and AAIFR. The Ministry of Labor also abandoned the unions and permitted closure under the ID Act. The main argument

of the unions was that if the Govt. could not run the mines they should hand them over to workers. BGML being the only gold mine in India and its geologists and engineers being the only gold mining experts in the country the employees were confident that they could not only extract the remaining reserves economically but also extract the very low grade gold from the tailing dumps or the over burden discarded as useless mounds of earth over several decades. This would enable them to remain in operation for at least another 30 years. The Ministry of Mines wanted to liquidate the assets through the court liquidator so that loans advanced by Govt. to BGML could be recovered. The unions claimed in court that the hidden agenda was to sell off the BGML lands for real estate development. Finally, in 2003 a Division Bench of the Karnataka High Court directed Govt. to hand over the mines to workers strictly for the purpose of revival of mining operations. The mines were taken over by the Govt. of India in 1962.

KGF Mining in the Aftermath of 1956 Nationalization

Under Indian Govt. Control, the mines became to be known as (Bharat Gold Mining Limited) BGML. When the Govt. of India took over the administration, the mines gradually became unproductive due to the rising production costs and a sharp decline in the amount of gold unearthed. So, the mines became known as a 'sick public sector enterprise' in the 1970s. The people of KGF face an uncertain future. They are either to accept voluntary retirement or removal forcibly. Whereas, during the time of World War II, there were more than 32,000 workers employed in the mines. By 2001 the workforce had dwindled to only 3814. Therefore, the area of the KGF, while once enjoyed great prosperity, has now become an area of poverty, unemployment and associated social disintegration.

Indrenath Stanley, V., (2008) Heart Beats of Ministry, p.149⁵

The KGF had many a firsts at its credit until 1956. It always stood in tune with the most advanced and sophisticated technical innovations of the world! This was the place where man tried to overwhelm the nature; and in return, the astonished nature rewarded men suitably! These men with the science and art of modern mining and with the State-of-art of the days have all achieved glory to the crown of their motherland. But, this reward, -the enormous gold so produced promoted the luxury of the world, but not the families of workers who extracted it.

Srikumar, S. (2014), Kolar Gold Fields, p.4⁷

We lament too much on the British exploitations. It becomes equally important

to record what the sons of the country did in the mine management. In the words of many senior citizens: since the day this goldmine was nationalized several changes have taken place to the worst. Here is a typical case which exposes how mismanagements and official laziness ruined a world class company.

The Gold Mines of KGF was looted lawfully by the British companies virtually pushing aside Indians – the legitimate owners from making any claim on their property. Chief Minister Sri Kengal Hanumanthiah visited the mines. He entered the KGF Hospital and was shocked to observe two distinct sections of wards, one for the Whites and the other for the non-Whites. There were also separate dispensaries in this hospital for Europeans and Indians respectively. The Chief Minister instantly decided to keep away the British companies from the Gold Mines. The country is ours, the State is ours, the goldfield is ours, the toil is ours; – but the fruit is theirs! How could he permit it? This was the trigger for the decision of nationalizing the gold mines by the erstwhile Mysore State Govt.

The Mysore Govt. started realizing that, their natural wealth was fast depleting and started claiming their right on the land of gold and put an end to the policies of Maharaja's Govt. with regard to the KGF mine. It was true that royalties derived out of the gold mine were invested in many capital ventures of the State. Bhadravathy Iron and Steel industries is one among them.

Sri Hanumanthiah was vigorously pursuing his plan for nationalizing the Kolar Gold Mines; whereas Prime Minister Nehru was not in hurry. In 1955, the State Govt. had already announced officially its intention to nationalize the KGF Mines. At a time when the Chief Minister was planning to nationalize the Mines, it was by a sheer co-incidence that the various trade union leaders in the field also formed a Mines Nationalization committee.

The Centre was bogged down with the question: "Will the nationalization be in the interest of the State?" Panditji exhibited his supreme spirit of respect to the decision of the people's forum – The State Legislative Assembly. Within weeks New Delhi announced that, it had conceded to the demand of the State.

On 28th November 1956, on the day Nationalization was to take-place, **M/s John Taylor & Sons in a most dignified and noble manner declared the voluntary liquidation of their company in the KGF. Thus ended the last vestige of the British ownership of an important economic resource in India.** When the KGF mines were nationalized, a symbolic gold-key was handed over to the Govt. signifying the change of ownership of the gold mining industry. Sri S. Nijalingappa, the succeeding Chief Minister, made the announcement of nationalization of the gold mines to the standing ovation by a large crowd at the Gymkhana grounds – Oorgaum, KGF. He formally took over charge of the mines on behalf of the State Govt. on 29-11-1956 which started functioning under the name Kolar Gold Mining Undertaking (K.G.M.U).



Fig.14. Visit of Hon. Sri. Jawaharlal Nehru, Prime Minister of India, to Gifford shaft Champion reef, KGF, on 16th July 1951

After the initial euphoria of nationalization of these famous gold mines subsided, when the task of mining and increasing the production of gold was entrusted to our new managers they realised their inability to face the challenge of mining a deep mine and gradually realised that they were not capable of managing the mines and the nationalised company of the State Government was incurring losses. It dawned on the State Government that it was not capable of managing the mines.

Earlier, Sri M.A. Sreenivasan (M.A.S) – the last Pradhan of Mysore State who was an able administrator held the post of the Chairman of the Mining Board and continued successfully till the tenure. But, it was not known to the common worker, why a long standing political leader in Karnataka who was appointed one of the directors on board resigned his position within nine months! This leader who was a

M.L.A (not belonged to K.G.F) must have felt administering a gold mine was far too different from politics! The above realization was made even while the British mining companies were paying huge taxes to the Govt. But at the same time the production of gold was rapidly declining from the time the Indian management took control of the mines. The production of gold declined from 5084 kg during 1957-58 to 2345 kg during 1967-68. It was 2000 kg during 1972-73; 1106 kg during 1984-85; 764 kg during 1990-91; it was 671 kg during 1991-92 and finally reached the rock bottom of 433 kg between 1999-2000. (Srikumar, S., 2014; Kolar Gold Fields, pp.825-831)⁷.

Report of K.S.R. Chari

The Govt. appointed K.S.R.Chari in 1984 to submit a report about the losses the company was incurring. Before that in 1981, the company had totally stopped the appointment of unskilled laborers. The company had incurred losses due to higher salary and dearness allowance, electricity charges and reduced production of gold from mines. On 17.4.1985, Sri Chari inspected initially Champion and Nundydyurg mines, then mills, administrative office of Yepamana and Chigaragunta Mines, Survey office, R&D centre on rock blasts, godowns, hospital etc. Details were sought from workers and public through questionnaires/hand bills. Suggestions were also invited from labor associations and officers about ways of running the mines profitably.

Bharat Gold Mines Limited (BGML)

The Bharat Gold Mines Limited was set up in 1972, to operate the gold mines of KGF as a PSU under the administrative control of the Ministry of Mines and is now closed. It was set up in 1972 to operate the Kolar Gold Mines of Karnataka (erstwhile Mysore Govt.) controlled Kolar Gold Mining Undertaking (KGMU). The BGML was primarily engaged in gold mining from the captive mines in the Kolar Gold Fields (KGF). Towards its last years the company also undertook mine development, shaft sinking, manufacture of mining machinery and other fabricated items for outside clients for which it set up a mine construction and Engineering Division. Until the time of its closure, BGML was the only world-class gold mining operation in India. It is a historical irony that the Central Govt. owned BGML Company did not wake up even when the gold prices peaked in 1980-81. It should have initiated corrective action and modernized its mines. Due to recurring losses year after year the company lost its financial viability and also support from Board of Management. In addition to it, pilferage also increased. But, the Central Govt. never gave scope for selling the gold produced in KGF at market rates. Hutti Gold Mines situated in a corner of Karnataka escaped from such a dual policy of the Central Govt. and was selling the

produced gold at market prices. Hutti Mines got electric connection several decades after KGF got it. Due to this reason, Hutti Mines has the potential to work for another 50 years. As KGF got modernized with electricity in 1902 A.D. itself, thousands of workers worked day and night and there was rapid exhaustion of gold deposit.

By 1985, the processing cost had reached a figure of Rs.921/- for 1 tonne of the ore produced in KGF. That means double the money was spent than the produced gold value. During the eighties, the number of workers was reduced and new appointments were totally stopped. By 1984-85, it was estimated that nearly 3500 to 4000 workers were excessive than requirement. The number of retirees and decreased every year was nearly 700. It was estimated to drive out 1000 workers in 3-4 years after announcing voluntary retirement. All estimates were upset as the Mysore Mines were closed at the same time. Nearly 1400 workers and officers in those mines were taken into the other two mines. The Govt. had to pay money to those superannuating too.

The calculation of the company to bring the mines hospital which had safeguarded the health of the workers and their families for more than a century, under ESI did not materialize. As Mysore Mines were closed the administration of the other two mines were asked to take care of the colonies of Mysore Mines. Chari had stated in his report that if the mines cooperative societies take care of town development administration, printing section, schools, canteen, milk diary, fair price shops, etc, the losses can be reduced. Also, he had proposed in the report for sending some officers to other companies.

By drilling in Champion Mines, attempts were made to locate new ore zones. Attempts were made to work out lean gold reefs which were left out when rich gold reefs were worked and deeper gold reefs. The losses had to be minimized by increasing the gold production. Daily production of 500 tonnes in Nandidroog's Golconda Mines and Henry shaft was increased to 1500 tonnes. For this, the mines had to be deepened further. The company placed a demand for two crore rupees. But, the Govt. did not release funds for this project.

After the appointment of Prof. K.V. Subrahmanyam from Indian School of Mines (Dhanbad) in 1972, the workers could realize for the first time as to what exactly is salary for the mine workers. New pay scales were fixed with the help of the Central Govt. Canteen facility was given to the workers. Mines were developed with the help of Rs.93 crores given by World Bank between 1981-1994. At the same time, nearby Chigaragunta and Mallappanakonda mines were opened up.

A meeting was convened on 21st February 2004 at KGF by the South India Human Education and Rights Cell to hear public grievances. H. Suresh, Justice (Retd.), Dr. Jeevan Kumar, Smt. Geetha Menon and Justice Manohar Vasia were present in the meeting. As a follow up of the invitation from the Central committee of the Human Rights Commission this meeting had collected reports from 40 people.

It was observed from some aspects in the reports that the Govt. and the company had totally denied human rights. The summary of the report is like this: When the mines was suddenly closed, 3814 laborers and their families lost everything and were driven to the street overnight and salary was stopped. No compensation or money was given in spite of so many years of service. No arrangements were made for further living. Water supply to the colonies was stopped. Electricity was cut off. Ration shops were closed. 248 public toilets started stinking without water. By the time the Mines were closed, the practice of manual cleaning of toilets came to end at last!

Cyanide particles from mounds occupying nearly 10% of KGF town were hurled into air and flowed into ground water due to which the people became sick. The only hospital with 121 years of history was closed. Sixty laborers died in four years after closing the mines due to mine diseases, environmental pollution and stress. Even today, nearly 6000 youths living here in broken huts travel by 'Swarna Express' to Bangalore to do small time jobs and return back by night. They earn few thousand rupees only. Women and old people staying back here go to jungles nearby to bring firewood. They use a part of it and sell the rest.

As long as the mines were running, the children of laborers were getting free education. As it has gone into the private hands, they are turned into child laborers as they do not have the money to pay. Others are remaining at homes. The laborers were not getting more than Rs.5,000/- at the time of closing the mines. That's why they had refused to accept lesser amounts as retirement compensation. They had no hopes of sustenance due to the step motherly attitude of the Government statements of the politicians, audacity of the courts, etc. Many boys and girls are married as they do not have money. The condition of those who have borrowed money is deplorable. Some newspapers misled by stating that KGF is shaken by goondaism there.

Town Municipal Corporation came forward to take care of the water supply to mine colonies. But, the Govt. of Karnataka refused it through an order on 29.10.2002. The meeting had requested to restore all such human right violations within 15 days. Based on a court order in 2007, six years after closing the mines, nearly 3500 workers who had not resigned got paltry amount from the Govt. Out of that amount, they had deducted the rent for 7 years and that day's price of the hut and paid the remaining amount. By that time many laborers had died and money of the rest had gone to the loaners.

Royalty

Mysore Govt. was getting 5% of the profits as royalty from the gold produced since 1910 A.D. In addition to it 2.5% of the dividend was also given to it. By 1930 A.D., 3.8 million tonnes royalty and 22.5 million pounds dividend was given to Mysore

Govt. By this time, John Taylor and Sons had taken over the management of 5 mining companies. They had the power to decline or to award fresh contract. They had the power to appoint new workers or to remove them. Also, they had total power of fixing salary and dividends. They were exercising their powers on thousands of feet deep Mines at thousands of miles distance from a small office in London. This office was in the palace in London's queen street.

Mysore State was the 5th largest state among the regions divided and ruled by the British in India, with an area of 29475 sq. km. Based on the strength of the population, it had acquired the qualification for 19 gun salutes. Mysore Govt. was contributing 40% share in the total money contributed by all states during those days⁷.

In spite of contributing so much, the Central Govt. was not giving any kind of priority to Mysore Govt. Between 1881 and 1947 no important railway lines or roads or any factory came up³. All the Dewans appointed by Central Govt. for Mysore State were under the influence of western countries and all of them had done honest efforts in starting Europe modeled factories and economic reforms. As a result of this, Mysore State was well known as a model State. Between 1886 A.D. to 1894 A.D. the royalty given by mining companies to Mysore Govt. rose from Rs.50,000/- to Rs.7,25,000/- (Hayavadana Rao, Mysore Gazetteer, v.11, p.986).

Nationalization

Companies of the Mysore Govt. were nationalized on 29.11.1956 with the purpose of giving more help to mines. The Central Govt. agreed in June, 1958 to pay 35 dollars per ounce of gold. Central Govt. agreed to pay the difference of loss in price between IMF and gold prices (as per Article 182). For the reason that the State Govt. should not lose face, the Central Govt. took over the total supervision of the mines in 1962. It was placed under the Central Finance Minister as KGMU. Finance Minister was the Chairman, Deputy Finance Minister was the Vice-Chairman, John Taylor's son was a member along with several other members.

In 1968, full term Chairman cum Managing Director took over the company. In 1971, the management of the gold mines was brought under the Steel and Mines Minister. At the same time, several rock blasts and fire accidents took place in Champion reef Mines. As a result of this, there was a reduction in total gold production by 45%. In 1965-66, fire accidents took place in Champion reef in 1965-66 repeatedly. The levels were filled up with water due to heavy rains. Due to all these reasons only 5084 kg in 1957-58 and 2345 kg in 1967-68 of gold was produced³.

As soon as the Central Govt. took the mines into its control in 1962, it constituted a committee to submit a report on ways of reducing the expenditure. In the report submitted by this committee, details of cutting down the expenditure on centralization

of workshops, urban development and administration costs were there. Methods of improving production through mining technology were adopted. When the voluntary retirement of employees was announced, 670 workers retired and nearly an amount of 80 lakh rupees was saved. In 1972, the name was changed from KGM to BGML. The balance sheet of loss since then is provided below:

Year	Profit/Loss (in lakhs)	Total Profit/Loss ³
1972-73	-58.15	-58.15
1973-74	-162.12	-220.36
1974-75	-180.24	-400.60
1975-76	-249.82	-650.42
1976-77	-134.34	-784.76
1977-78	-214.18	-998.94
1978-79	-82.12	-1081.06
1979-80	+352.13	-728.93
1980-81	+567.88	-161.05
1981-82	-99.56	-260.61
1982-83	-290.21	-550.82
1983-84	-568.93	-1119.75
1984-85	-1261.84	-2381.59

Total loss incurred by the company from 1.4.1972 to 1.4.1979 was rupees ten crores.

By 1984-85 it was 2381.59 crores. As rocks were hardest in the world, KGF was undergoing more difficulties technically. More than any of these things, the company was receiving only Rs.1.82 per gram of gold since the beginning for nearly 60 years up till 1930. Between 1930 and 1960 there was an agreement with IMF for an average price of Rs.5.30 per gram, i.e., 35 dollars per ounce (Rs.167/-). It became 220 rupees per gram in 1984. By 1980 mid-January, it suddenly became 820 dollars per ounce of gold. When a price of 35 dollars per ounce was fixed, many Mines all over the world were closed. But, the KGF Mines could move on limping crossing over all these developments³.

Last decade (1991-2001)³

Infrastructure possessed by the Mines:

Land area: 12500 acres

Workshops: 04

Mines Hospital: 1 (240 beds)

Mines Town: 11000 houses (1000 bungalows and 10000 colony houses)

Total evaluated price: 112.00 crores: (Now may be much more value)

Gold production over decades⁷

Year	Ore processed	Average gold content	Gold production (in kgs)
1881-1890	157831	47.50	7496
1891-1900	2134730	41.99	89627
1901-1910	6090185	28.05	170813
1911-1920	6897003	18.19	125483
1921-1930	5949093	19.66	116980
1931-1940	6440367	15.44	99423
1941-1950	5095750	12.43	63341
1951-1960	5288643	10.23	54126
1961-1970	4540668	7.15	32451
1971-1980	3621531	5.35	19362
1981-1990	2767136	3.37	9327
1991-	1826006	3.14	5728
Total	51145015	15.65	800378

Before 1880: 336072 tonnes of ore were crushed with an average of 18.51 g/t and 6221 kg of gold was extracted.

Loss in the last decade³

Year	Money loss	Total amount	Total loss (in crores)
1991-1992	16.29	42.28	94.09
1992-1993	15.93	34.40	129.69
1993-1994	18.72	42.14	169.08
1994-1995	18.63	36.50	205.58
1995-1996	18.38	43.73	249.31
1996-1997	22.59	54.08	303.39
1997-1998	21.78	39.98	343.38
1998-1999	24.42	65.65	409.03
1999-2000	37.45	92.99	502.02
2000-2001	11.17	53.25	556.75

Gold production and the cost of production⁴

Year	Ore processed in mills	Average gold content per tonne	Gold production in kilograms	Production cost per to grams
1991-1992	218971	2.87	671.72	7629
1992-1993	228142	2.71	658.14	8581
1993-1994	228085	2.81	672.18	9276
1994-1995	200898	3.07	650.28	8814
1995-1996	198578	3.10	649.77	10218
1996-1997	225266	2.98	692.32	1108
1997-1998	151381	3.24	514.17	11015
1998-1999	155535	3.27	531.28	14231
1999-2000	138925	3.01	433.51	19319

Number of workers who remained at the end¹ (after VRS)

KGF:	2760
Chigaragunta:	432
Old Bisanattam:	107
Yepamana:	164
Other projects:	93
Total:	3556

Officers and workers¹

Inside mines:	70	1759	1829
Outside mines:	28	1699	1727
Total	98	3548	3556
Scheduled castes:	35	2017	2052
Scheduled Tribes:	04	41	45

Decision to close Mysore, Champion and Nandidroog Mines in the next seven years was taken in 1987. Work was stopped first in Mysore and Champion Mines. Among these Mines, as work was going on in Nandidroog Mines, water in the other two mines was pumped out continuously. There was tunnel connection between all Mines and water was getting filled up. In the subsequent days work was stopped in Nandidroog Mines up to 2250' level. Gold production was totally stopped from 1.3.2001. Electricity connection was cut off on the same day. Water had filled up to 2000 feet level on 1.8.2001. Subsequently water filled up in all mines gradually up to first level.

Increase in Electricity tariff: Electricity consumption³

Year	K.W./Hour	Year	1	2
1972	0.08	1972	1007.48	74.15
1982	0.03	1982	916.94	302.54
1992	1.94	1992	604.76	876.05
2000	4.32	2000	292.81	1678.20

1. in lakh units. 2. Money in lakhs.

Rehabilitation: Some projects

BIFR asked ICICI on 27.7.1993 to formulate rehabilitation plans. Suggestions

given by ICICI Company for revival are as follows:

1. To produce 2 tonnes of gold per annum from cyanide dumps.
2. To close non-profitable mines stage by stage.
3. To run the Chigaragunta Mines profitably.
4. To excavate other mines and executing engineering jobs.
5. To reduce the number of workers gradually.
6. To expunge losses from registers.
7. To waive off loan and interest.
8. To make good losses by the Govt.

Although several foreign companies came forward with plans to extract gold from cyanide dumps between 1994-1997, however, these were not given much consideration. Govt. decided to close all mines on 24.06.1997 and announced to give voluntary retirement to all. On 31.12.1999, BIFR in its Statement declared that the Govt. can close all mines as all efforts to revive the mines had failed. BIFR gave its final decision on 16.6.2000 to close the mines. On 15.11.2000 BIFR rejected the appeal given by workers against BIFR order. Letter was written to Labor Minister about closure of mines as per Section 25(E) I.D.Act.

11.12.2000: Under voluntary retirement scheme, the workers were asked to choose between higher capacity factories or on Gujarat model (Gujarat Govt. had offered a package/scheme for voluntary retirement). Only a few people opted for voluntary retirement. The reason was that the compensation was too less in both schemes. Even then, everyone was released from work.

Voluntary retirement and compensation⁶

Higher capacity	Factory	National salary as per Gujarat model		
Ex-gratia	138000	178	181000	240000
Gratuity	53000	68000	53000	68000
Leave encashment	9200	17000	9200	17000
Notice pay	4600	6000	4600	6000
Total	204800	269000	247000	331000

Age of the workers as on 1.3.2001¹

Age (officer)	Over ground	Inside Mines	Total
20-30	-	-	-
31-40	05	07	12
41-45	15	16	31
46-50	21	14	35

51-55	12	03	15
56-60	02	03	05
Total	55	43	98

Age (workers)	Over ground	Inside mines	Total
20-30	-	05	05
31-40	204	431	635
41-45	611	757	1368
46-50	593	422	1015
51-55	290	97	387
56-60	38	10	48
Total	1736	1722	3458

Those who availed voluntary retirement¹

Year	Officers	Workers	Total
1990-91	-	102	102
1991-92	08	1072	1080
1992-93	-	-	-
1993-94	51	866	917
1994-95	20	311	331
1995-96	05	181	186
1996-97	12	296	308
1997-98	58	1312	1370
1998-99	02	24	26
1999-2000	01	31	32
2000-2001	40	636	67
Total	189	4831	5028

Some action plans

1. Heads of several divisions.
2. Supervisory division.
3. To transfer the supervision of mining area to Town municipality.
4. To stop contract work.
5. To collect money to be paid to workers.
6. To drop all vigilance matters about workers and disciplinary proceedings.
7. To finalize all complaints in the courts.
8. To continue the communication.
9. To pay the amounts and loans step by step to solve all disputes.

Some problems which had remained unsolved

- Unsolved labor problems.
- Electricity, water, roads and buildings.
- Civic amenities in mining areas.
- Expenditure to take care of all factory workers remaining.
- Ongoing activities expenditure.
- Disposing of garbage lying around Cyanide dumps, shafts, pits and Mines.
- To manage social and economic problems.
- Political problems, trade unions, non-governmental-organisations and pressure groups of political parties.
- State Government law and order.
- Security, disposal of other articles, pilferage and preventing land grabbing.
- Protection of mines, workshop, etc.
- Contact with Govt., media, workers and unions.
- Finalization of transactions, to conclude everything legally.

References

1. Chari, K.S.R., (Sep, 1985) formerly secretary, Bharath Gold Mines Limited. Department of Mines. GOI. New Delhi, p.7.
2. Hayavadana Rao. Mysore, Gazetteer, Vol.II, p.986.
3. Prasad, S.D. (22-23, Jan, 2003) Mine closure planning – A case study of Kolar Gold Fields.
4. Memo on Mysore Subsidy (1919) Crown representative records, KSA.
5. Indrenath Stanley, V., (2008) Heart beats of Ministry. p.149.
6. Parvathi Menon (2002) Frontline magazine, Vol.19, May 25 – June 7, 2002.
7. Srikumar, S. (2014) KGF. p.4.

Chapter 5

Some Milestones of Mines

The mines started in 1880 AD and within a few years they saw tremendous development, which can be called unprecedented. A British doctor by name Dr. T.J.O. Donnel commenced the Mines Hospital for the first time in between 1880-84. Till 1983, only one doctor was there and there were 10 beds. But, these were never occupied fully. Out of these 5 beds were reserved for Europeans and 5 were meant for locals.

Mining Hospital

In 1890, 22500 local workers were working in the mines but the beds for them were only five. In the beginning, the locals did not have faith in the hospital. The reason was mainly the doctors were Europeans. The workers belonged to lower sections and there were inhibitions in them such as caste, untouchability and power. As Dr. Donnel was treating everybody alike, the locals started coming towards hospital slowly. The doctor had written in the visitor's book 'happy note is that the locals are satisfied with the treatment given in the hospital and they are developing good opinion about the hospital'.

His brother, Dr. J.D.O. Donnel also joined him. In the beginning of the 19th century, several types of epidemics such as cholera, plague, chicken pox, influenza, etc., were appearing in the mining colonies, camps and in surrounding areas. The Donnel brothers and the company management had to take preventive measures of any types. It was a big challenge to save the mine workers from many types of accidents and epidemics. More than the accident cases of workers the prevention of epidemics among the workers became a great challenge to the Doctor Brothers. Large sheds were constructed for the patients near the hospital. Sanitary Section was opened under the supervision of Chief Medical Officer to prevent the epidemics. It is recorded that in 1891 for the first time cholera appeared. The company doctor sent a message to the surrounding areas that the cholera spreads through water and hence it was essential to maintain the hygiene and purity of water. It is possible to prevent cholera



Fig.15. Famous mining Hospital

by drinking clean water. The disease came down to some extent after supply of water from the Bethamangala Tank, constructed across Pennar River. A few public taps were laid here and there in the workers' camps.

In 1890, the company administration had opened a small library inside the hospital for the benefit of the in-patients. This facility was provided much earlier for the use of the Britishers and Italians. In July 1897, the then Dewan of Mysore Sir K. Sheshadri Iyer had exclaimed by seeing the cleanliness in the hospital that, 'by seeing this hospital, I am extremely happy everything is in order'. A modern operation theatre was added on in 1898 and a few more wards were added. A water tank was constructed behind the hospital. When the Mines Regulation Act was introduced in 1889, it was entrusted that a detailed examination be done about any reported accident and a report be submitted. The administration also directed the hospital to do research about the frequently appearing tetanus.

In the next decade, a wide portico was built in front of the hospital and some more rooms were added. This was called the 'Edward Ward'. This building remained till the mines were closed. Two more British doctors namely Dr. L.P. Stokes and Dr. J.F. Pedge Moris joined the Donnell brothers in 1908. The Donnell brothers worked extremely hard and whole heartedly for the first 4 decades and developed the hospital to a notable level and earned international recognition to the hospital. The elder Dr. T.J.O. Donnel worked as Chief Medical Officer for the first 20 years. In 1910, the British Empire decorated Dr. Donnel with the title, 'Kaiser-e-Hind' with a gold medal. When he retired in 1911, his brother took over his position. The company's patron M/s. John Taylor extended all kinds of help to him.

In 1913, an Indian doctor by name Dr. Sundaram joined the hospital. But he did not continue for a long time. In his place, another Indian Doctor by name Dr. Deva-sagayam got selected. As the hospital developed, its popularity also increased in all the directions. In 1913, many dignitaries had visited the hospital. Among them were Indian Viceroy and Mysore Maharaja Shri Krishnaraja Wodeyar.

In 1916, an out-patient department was opened and also a laboratory was started. With this, the cholera was controlled to a major extent. In 1917, plague appeared, through the rats, in a big way. Dr. Donnell and his staff could check it to a great extent. In 1917, Dr. Devasagayam resigned from his job. In his place, another Indian Doctor namely Dr. Manuel joined the hospital. He served the hospital for 25 years and retired in 1942. Dr. J.D.O. Donnell retired in 1926 after serving for 33 years. Dr. Stokes joined in his place and earned a good name like Dr. Donnell in the medical field. In 1927, India's Vice Roy Lord Irwin and Mrs. Irwin had come to the hospital. In the same year, Henri Taylor had visited along with Sir Mirza Ismail. An electric sterilizer room was constructed under the guidance of Dr. Stokes. After seeing this, Sir Mirza Ismail commented that he would think of starting similar facility in Govt. hospitals where electricity was available.

As malaria appeared in a big way in 1930, a Malaria Treatment Section was commenced in 1932. In 1933, an X-ray machine was installed and for the first time, research work was conducted on silicosis. In the same year, Dr. Rohan Tree joined the service. In the coming year 1935, another doctor by name Chaplin joined the service. This doctor in later days did research work on 'Pneumoconiosis' and earned popularity all over the world. In the same year, another Indian Doctor Dr. John also joined.

In 1936-37 Rohan conducted research on the medicines used in the treatment of hook worms and got a MD Degree from Dublin University. In this period, a separate shed was constructed by the side of the hospital for the hook worm patients. The locals were calling it as Rohan Tree Poochee (worm in Tamil) Shed. After serving for 30 years, Dr. Stokes died of hernia in 1936. Dr. Pitts Moris continued in his place but he died later in an accident. By this sudden development, the company requested the retired doctor Dr. Donnell to serve for some time.

In January 1938, Dr. Rohan Tree was appointed as Chief Medical Officer. The hospital was expanded in that year. New wards, new operation theatre and electric kitchen were added and the OPD was expanded. In the same year, a new doctor namely Dr. D. Ankerle joined the hospital. During the period 1940 to 1952, the hospital got a very good name in the entire country. Dr. Rohan Tree, Dr. Dankerle and Dr. Chaplin were mainly responsible for this. In 1940, a British descendant Dr. Crompton visited the hospital and commented that this hospital represented the typical Mysore State. The doctors were successfully operating upon the patients under any critical conditions.

In 1951, a WHO representative Dr. Habzburg visited the hospital and praised 'this is the cleanest and most modern hospital in the country'. During the II World War, special treatment was given to the Garrison who had camped near Bethamangala. Dr. Rohan Tree had gone to serve during the World war between 1942 and 1944. In 1942, Dr. Manuel retired after 25 years of dedicated service. In the same year two

Indian doctors, Dr. Krishna Murthy and Dr. Srinivasa Iyengar were appointed. They served for the next three decades.

Many other doctors also did research along with Dr. Rohan Tree and published their reports. Dr. Chaplin conducted research on medicines for job related diseases. He published papers on Environmental Health and Pneumoconiosis. He also conducted research about the impact of high temperature on the workers. Dr. Lindsay and Dr. Chaplin got a gold medal for this work from South Africa in 1948. For the first time, a report on Pneumoconiosis was published in India in 1947. A Physiotherapy Section for casualties was also opened in the same year. Dr. Chalamle took the charge of this section and research work was conducted on the air pollution in mines.

There are no documents available on the nurses who served up to 1930. It is learnt that later a sister by name Holmes served for 15 years. At that time, training was given to nurses in the hospital. For the first time in India, women were working in hospital. The 10 bedded hospitals in 1890 become a 270 bedded hospital in 1980. Also, specialist doctors were there in all the departments. The number of out patients was more than 2000 per day. New doctors were given training in the hospital. This hospital which served innumerable patients for 121 years has become sick now and stands abandoned amidst mine tailings like an orphaned monument, recollecting its glory of the past (Gowda, A.M.S & Shenoi, B.V. 1980).¹

The Kamala Nehru Sanitarium hospital was specially constructed for the mining workers in the outskirts of Kolar Town (on Bangalore - Chennai NH4). Due to mining pollution inside the tunnels, silica dust was getting accumulated in miners' lungs, leading gradually to decay of the inner tissue resulting in tiny perforations and oozing out of blood. The point 1 indicate 10% problem and 2 points indicate 20% in the lungs and so on. The doctors who did medical checkup of the workers were declaring most of them as unfit for work. Such of those who lost the jobs were sent back by the company to their villages. The reason being of pure air in their places or the company might have thought that other serving workers should not see these suffering workers. The companies were feeling that the retired or dismissed workers should not stay in South Karnataka as cold climate prevails here. Hot climate is suitable for silicosis patients and that's why the companies were arranging to send them to Tamilnadu (Gowda, A.M.S & Shenoi, B.V., 1980).¹

Danger in Mines

Working in deep mines is very dangerous and at the same time it is a challenge too. The workers working in such conditions had to face natural and also self created problems; added to that they should have a strong body and a firm mind. When the history of the mine is examined this appears to be true. The deepest mines, Champion

mine, has reached 3230 meters below ground. Most important problems that one faces while working in such deep mines on day to day basis are: the sudden movement of floor, machinery break down, accidents due to worker's mistakes, water flow, temperature of the rocks and short circuit.

Although the incidence of fire was less, intensive care was taken to prevent it. Fire was spreading rapidly inside the mines due to the pumped in cooled air. As there is less oxygen in the tunnels due to the accumulation of carbon dioxide, the workers had difficulty in breathing. If the fire caught up with the wooden logs used as support to prevent roof collapse and if fire engulfs machinery, there was a huge loss. The fire accidents were occurring mainly due to electric short circuit, blasting, working with machinery without enough care. Some workers setting fire for warmth in tunnels also some time creates the problem. To prevent such accidents, a Central Mine Rescue Station was established in 1932. The first officer of this unit G. Bethweit selected strong bodied, firm minded and healthy youth. Such units were established in African mines way back 1924. Later on, such units were setup all over the country.

Altogether 24 officers, 2 from each mine, who were specialized in different sections of work, were selected for special training for the first time. Officers from different mines of the country were also coming here for training. 1063 officers from KGF and also various other companies were trained in this unit between 1923 and 1980. The equipments available in the Rescue Station were: (1) Masks with oxygen, (2) Pureth Gas Masks, (3) Nomiti, Nomex and Automen Machines, (4) Pumet Fire Extinguisher Cylinders, (5) First Aid Boxes, (6) Fire Extinguisher hose pipes, (7) Telephone equipments and (8) Gas Sampling and testing equipments.

The tragedy was that the security teams themselves were getting trapped in danger. Whenever accidents occurred, reaching those spots was difficult or almost impossible. Many such tragedies do keep occurring once in a way all over the world. When accidents take place in the mines, the rescue teams enter the spots at crucial times. The main types of accidents that take place in the mines are: (1) Abrupt stoppage of the wheel carrying cable with cages, (2) Snapping of steel cable, (3) Power tripping, (4) Accidents involving workers, (5) Blockade of tunnels due to collapse during rock bursts etc.

Those trapped during such times die mainly because of non availability of oxygen, some time they die even if they carry oxygen cylinders due to its exhaustion. If a group of workers are trapped below thousands of feet, many other workers have to join together to bring them up. It becomes much more laborious if electricity gets snapped. In the vast dark tunnel space inside the mines, the workers had to tread very carefully inch by inch and traverse for longer distances before they could find their way to come up.

101 fire accidents had taken place in KGF till 1980. A very big fire accident took place on 24th May 1931 in Nandidroog Mines. The fire continued for nearly a

month. 52 workers had died in this tragic accident. The fire that occurred on the 64th level of Gifford Shaft was extinguished within 10 hours but in between 9 laborers had lost their lives. In another fire accident in the same mines in May 1942 fire had continued to burn till December of that year. On 6th February 1937 fire appeared in the Henrys' Shaft. The shocked workers ran towards the cage and in the process one worker slipped and fell into the shaft and lost his life. Altogether 75 workers had lost their lives in the fire accidents in the history of KGF mines.

Small size fires appearing close to the work spots were immediately doused with sand or pumet cylinders directly. Large fires were extinguished with water. If it was not stopped even then, the area was blocked to prevent it from spreading to other area. Doors to the tunnels were also closed and also the circulation of air was cut off. They were putting rock boulders and sand on its way and inflammable materials such as petrol and diesel were carried away to safe places. Most important measure was to cut off fresh air to prevent supply of oxygen (Rao, M.H.R, 1980).²

First Electrification in Asia

The Cauvery River which takes birth in Tala-Cauvery flows down the Western Ghats and at Shivanasamudram falls down a gorge to 410 feet depth in two branches called Gaganachukki and Bharachukki. It was planned here to utilize the gradient to produce electricity in 1890. But, the existing technology had not become feasible. The John Taylor & Company was in need of cheap electricity at that time and it was not prepared to invest more money in that work. The Mysore Maharaja also did not show any inclination towards it in the beginning. It was altogether a very new idea of transmitting electricity over great distances.

In 1890, generation of hydroelectricity had started in America and European countries. Only after 12 years since then, electricity was generated in Mysore State and that credit goes to the Maharaja of Mysore. He sent an engineer by name Labaneer to study the hydroelectric projects at Niagara and other places. As a result of that, the foundation was laid for hydroelectric project at Shivanasamudram in 1900.

An agreement was made with John Taylor & Company to erect pillars to carry 33 KW of Power over 140 km from Shivanasamudram to KGF. This was considered as a risk by the Company. They had to accept the condition that the American Company was not responsible if electricity was not transmitted over that distance. After bringing electricity to KGF, it had to be distributed into various levels inside the Mines. Also the telephone connection had to be provided. It was a record of sorts during that time for transmitting electricity over that distance. In the beginning 10 generators were installed in Shivanasamudram and 42 MW power was generated. Consequent to an agreement and successful implementation of the Project, the American Company General Electricals (GE) had provided its generators. They came by ship up to Goa



Fig.16. Gigantic equipments brought from England and assembled inside and outside the Mine



Fig.17. Italian officers and locals in Underground work

and from there by train up to Maddur. From there, with lot of difficulty the machines were transported by bullock carts and horses.

The generator was lowered to 410 feet depth. On 9th June 1902, water started flowing into penstocks and electricity was generated. It reached KGF and thereby a world record was created. The work was completed in just two years from 1900 to

1902. On 30th May 1904, it reached Bangalore and also the Mysore Palace. It was a marvelous job to erect electric poles at regular intervals over a distance of 140 km from Shivanasamudram to KGF all along in rugged forest terrain. When compared to today's modern world, during those days, when such necessary facilities were non-existent bringing power from Shivanasamudram to KGF mines was indeed a magnificent achievement. Since 1902 till today electricity is being supplied uninterruptedly all the time. High capacity transformers were installed near Champion Reefs Mines.

The company had entered into an agreement to purchase a maximum of 4000 KW electricity from Mysore Govt. The rate was fixed at 20 Pounds per 1 HP per annum. Electricity was obtained at this rate for a decade. It was reduced to 10 Pounds later. As another transformer was installed in KGF mines, a machinery increase to 4800 KW generation was made in Shivanasamudram. In 1915-16, again a 5250 KVA capacity transformer was installed in the Mines. The company was getting uninterrupted power supply from 1941 to 1970 as per an agreement in 1941. The electricity transformers were limited to the KGF mines till 1958. Later, it was brought under the Electricity Board.

There were a total of 2000 motors with $\frac{1}{4}$ HP to 2000 HP capacity. Out of which, 50% was used for compressors, 13% for cages, 13% for ore crushing, 18% for air conditioning units and 6% for rest of the machines was used. The mining companies used 19,000 KW electricity in the sixties. In KGF, there was a facility to repair AC/DC motors that were brought from all parts of the country (Menon, A.M, 1980)³.

Rock Bursts and Tremors

As the mines deepened, the frequency of rock bursts increased. The first rock burst in KGF occurred in 1898. It occurred at 960 feet depth in the old Oorgaum Mines. During those days, the rock bursts were called 'Air Blasts' or Earthquakes. While working in the tunnels, if there was a roof collapse leading to huge sound (blast) then it was called an Air Blast. At first, it was believed to have been caused by the release of pressure within rocks.

There used to be tremors for a few minutes after the blast / burst. The intensity of the tremors depended on the intensity of the rock burst. Sometimes they were appearing to be minor earthquakes. In 1962, in Champion Mines alone, 44 huge rock bursts had occurred accompanied by 851 tremors. Due to these rock bursts inside the mines, the entire township was shaking. The rock bursts were also occurring due to the collapse of the wooden logs and cement walls giving support to the roofs due to the overweight. Generally, the auriferous quartz reefs had a width of 1 m to 6 m with a dip of 40° to 45°. Dip increases with depth (shallow near the surface). After stopping out the auriferous quartz, the space was filled back with wooden logs, concrete walls

and granite blocks. The rock pressure increases as one goes deeper and deeper in the mines. There are fractures and fault planes within the rocks. The fractures get widened as rock pressure increased and the supporting logs etc. gave ways to the increase in weight of the rocks.

New fractures were appearing at several places when rock bursts occurred over a distance of 2 to 3 km from that spot, tremors of 4.5 to 5 in magnitude on Richter scale were experienced on the ground. The rock bursts occurring at KGF were recorded on seismographs situated at 760 km distance. If it is more than 5 on the Richter scale, it can be considered as a big one. The villages surrounding the KGF area were also vibrating during such rock bursts / tremors. The house walls, roofs and articles in the kitchen were falling on the floors.

Some Geologists and Mining Engineers had done research to understand and prevent such rock bursts in the mines. Special Study Committees were setup in 1926 and 1955 to conduct research on rock bursts and tremors. This committee did research in between 1955 to 1972 and suggested precautionary measures to be taken in the mines. Prof. E.C.J. Patts of New Castle University of England had been associated with this committee, which conducted laboratory scale experiments and submitted the results in a Report.

The rock bursts can be classified as: Stress related blasts, Production related blasts, Stoop related blasts, Collapse of pillars, Collapse of a part of mine excavation, and Collapse of Shafts etc.

Rock Bursts between 1957 and 1978

Year	No. of rock bursts heard by people	No. of rock bursts recorded in seismograph	Year	No. of rock bursts heard by people	No. of rock bursts recorded in seismograph
1957	23	386	1968	05	1157
1958	30	537	1969	02	1180
1959	29	549	1970	03	762
1960	33	877	1971	10	1152
1961	47	589	1972	14	1202
1962	44	851	1973	12	852
1963	43	632	1974	14	643
1964	21	478	1975	10	419
1965	12	748	1976	09	434
1966	04	1096	1977	10	366
1967	09	1109	1978	14	479

A total of 13 geo-phones (6 inside the mine and 7 on the surface) were installed and connected to seismograph to identify the exact place of rock bursts and air bursts. The experts were reaching these spots to collect data and to take precautionary measures (Krishnamurthy, R., 1980).⁴

An Experience in the Year 1949 by A. Satyapal

‘...It was just 10 months since I had joined the work and I was still under probationary period. But I was given full responsibility of the night shift. Work was going on in the 98th Level on 21st August 1949. This level is at a depth of 1.60 km below the ground level. I briefed all my subordinates about the work to be done, I moved from there to Oakley’s Shaft and then to 98th Level through the Auxiliary Shaft and from there to 94th Level of Bullen’s Shaft.

I informed all the workers to come to 94th Level for taking rest after finishing the jobs on 98th Level. I do not know why this thought occurred to me. From here I moved to the winze of the auxiliary shaft on 100th level. Work was going on 32 feet below from there. After inspecting the working spots, and finishing my first round, I was going to the 94th level through the auxiliary winze. All of a sudden a terrific explosion was heard at 2.35. That was beyond my imagination and is unexplainable. My lungs were inflated like balloons. The lights went off and there was pitch darkness everywhere. I started getting a doubt whether I had my eye sight or not. Next moment, I heard the shrieking and shouting of workers nearby. For a couple of minutes I could not make out what was going on. Then, I could make out that the compressors had burst and the air was leaking continuously.

Understanding the circumstances, some of us opened the cross doors of the 94th Level for all air and dust to move out. We lighted the Carbide Lamps slowly. I phoned up the Telephone Exchange on the 50th Level. It was ringing but nobody lifted it. Where has this operator gone? I shouted loudly. The Senior Foreman Govind Nair came closer to me and told ‘the telephone wires are probably snapped due to this rock burst’. The air hoist (steel lift to carry workers) of the main winze on 93rd Level had also snapped due to rock burst. As the air hoist was not in a condition to work, I and some others went up through a ladder to 93rd Level from 94th Level. From there we informed those below on 100th Level to come up through ladders. The workers, by then had finished half of the job for that night and were tired. There was no drinking water anywhere.

All of us joined together on the 94th Level. There was no tunnel to walk into the adjacent mines. We came up to the 93rd Level through the main auxiliary winze shaft ladder. From there we crawled through narrow cracks like snakes and reached the 92nd Level. As all the stopes of 92nd Level were closed with boulders, we climbed the auxiliary shaft ladder and reached the 91st Level. We thought that somewhere a rock burst might have occurred. We had to go up on the water soaked ladder one by one in the dark. We could not make out whether that ladder was strong enough or not.

I counted all the workers in that shift, while going up from 92nd to 91st Level. I had forgotten this matter till that time. All means of communication were broken-

down from 82nd Level to 85th Level. Finally, we reached the 89th Level safely. Nageshwar Rao, the Chief of Mines Safety and his staff were waiting for us anxiously at the gate. Next day by 8' O clock in the morning we all came out and could see the light of the day.

Mr. Peter Best, the Superintendent of Champion Reef Mines shook my hands in the presence of Gifford Shaft workers and said 'Well done my Boy'. With that all my anxiety was over as if I was reborn and started preparing mentally to face the difficulties that may come my way in the coming days in the mines. Later, we came to know that the 91st and 92nd Level Shafts were fully covered by the rock burst. The cage at that level had snapped and collapsed in to sink. It took six months to clear the debris created by the rock burst. Whenever I recollect this incident, I wonder what would have happened to the workers whom I had asked to move from 95th Level and below to come to 94th Level. This question keeps ringing in my ears (Satyapal, A., 1980)⁵.

Signal Communication

In 1876, Alexander Graham Bell was the first to talk over the phone. Before him, in 1861 Phillip Rice had succeeded in passing on musical notes through the telephone. During those days the KGF Mines were at a contemplative stage of major expansion. As the telephone connectivity surrounded the world gradually, they also arrived at the KGF and descended down into the mines.

Those days, in the mines, people had to shout from the upper level to call those in the lower level. As the shaft deepened, signals were sent through wires from level to level. These signals could be heard only up to one stage as the signals were sent out by hitting on water and air pipes. Later, electric signals were sent through cages. As it was dangerous, it was retained only in the tunnels.

The signals given from one level to another level were very important and separate signals were adopted for each level. As these were costing more money, drop signals were adopted. Those resembled the signals of today's lifts. But, this was causing confusion in the signal board. The bell in the board was ringing irrespective of the level from which it was coming. The persons ringing the bell were getting confused. In later days, the audio visual lock out signals was adopted and this system was retained till the end. In this system, when the cages touched every level, signals were appearing on sign boards. When the cage was moving at a particular level, the signal system was not accepting the signals from other levels. In later days, different types of signals were adopted to identify different levels. Different types of signals were adopted for the movement of the cages inside and outside the mines, ore transporting trolleys and movement of machinery / equipment, etc (Krinshnaji Rao, B.V., 1980)⁶.

Mines Workshop

The Oorgaum Workshop is the oldest Workshop. In the beginning only a few minor repairs were done here. After the II World War many types of machinery were manufactured in Oorgaum, Champion Reefs, Nandidroog and Mysore Mines. The earliest batch of machines of Parkinson Universal radial drilling rigs worked for hundred years and more.

In 1900, the mortar box weighing 5 tonnes was manufactured here. Heavy duty saws were made here. In between 1880 to 1940, in the electric workshop, all types of machines starting from small size to very big complex machines were manufactured. Accessories like electrical cables, junction boxes, isolators, circuit breakers, insulators, switches, fuses and sparks were imported from outside till 1939.



Fig.18. Champion reefs workshop Est. in 1900

In 1964, all the workshops were centralized and all types of machinery were manufactured. Tube mills liners, arc rail supporters, rock drill equipments and drill rods were manufactured. Besides, tungsten carbide drill rods were made here. On an average one lakh rods were produced here. The Govt. procured many types of machinery from here during the II World War.

When the new trial shaft was opened, the headgear did not arrive from England on time. Then, the headgear was manufactured in this workshop and was installed to everyone's surprise. Later on, the headgears and other equipments for all the mines



Fig.19. Earlier Wooden Headgear.

were manufactured here itself. In 1961-62, rock drill equipments and heavy duty pumps used inside the mines were manufactured here.

Later, a very big size crankshaft was manufactured here. An important pump by the name Deve was also manufactured here. It had the capacity of 175 HP with 390 mm stroke and 145 mm in thickness. It could pump up 1000 liters of water to a height of 670 m.

As the iron pillared mill in Nandidroog had become old, it had to be completely modified in 1958. But the mines administration took a decision to manufacture other equipments in this mill due to shortage of funds. By 1961, all types of equipments including the ore crushing units were manufactured here.

Many big size equipments manufactured here were supplied to Hindustan Copper Ltd., and Hindustan Zinc Ltd. 160 HP capacity double drum AC winder, high capacity cap gears used in the shafts, were produced here besides all the machinery required for Ramagiri Gold Mines and Chitradurga Copper Mines. All these machines were of better quality than that are produced anywhere in the world. The big size wooden logs used as support in the tunnels were prepared here and then transported to the underground mines. Later on, in place of logs, steel pillars; cement blocks and sand were used. The workshops on wood lost their importance gradually and in 1974, only one saw mill was remaining (Raghavan, G.V., 1980)⁷.

Mines Town Development

The gold mining started in 1880. Over the years the township developed into a large town with modern bungalows, clubs, schools and colleges, hospitals, spacious play grounds, etc. The mines area has retained the old world European charm even today. The past glory is reflected in large structures. This township which developed because of gold mines had become the 4th largest city in Karnataka in 1960. Robertsonpet which is adjacent to the mines area was brought under the Municipal Administration separately.

The Britishers lived a luxurious life. There were at least 8 to 10 servants working for them in each bungalow, as butler, maistry, gardener, dog boy, ayah, sweeper, etc. When there was no electricity, the servants sitting outside the windows were moving long ropes tied to the windows to fan cool air to the British couples who were relaxing in their bedrooms. They were working throughout the day in offices. In the evening they visit clubs where music and dance programmes were going on throughout the night. They were playing shuttle, badminton, snooker, table tennis, billiards, etc. outside the clubs; they were playing tennis, squash, etc. There were several clubs : Nandidroog Skating Rink, Champion Reefs, Gymkhana, Oorgaum, and Mysore Mines clubs. In 1973, all the three divisions of Nandidroog, Champion – Oorgaum and Mysore Mines were brought under one control. Several company buildings, Mines hospitals, schools and colleges, community halls, libraries, clubs, play grounds, churches, temples and mosques, were also there. In addition to them, police station, telephone exchanges, Govt. offices, Mines Safety Office, Cosmic Ray Research Centre, Town Planning Authority Office, Employment Exchange, LIC, RTO, hotels, grocery shops, and vegetable and mutton shops were there.



Fig.20. Famous KGF Mining Club

The workers were living in camp houses very close to the mines. Their houses were made up of bamboo thatches, zinc sheets and AC sheets (asbestos cement sheets) and mud walls. Even 50 to 60 years after commencement of the mines, there was no improvement in their housing condition. Improved AC sheeted houses came after hundred years. All these types of houses were 10 feet by 10 feet or at the most 15 feet by 15 feet size houses. The number of houses did not cross the 10500 mark even when the number of workers touched 34000.

In 1976, electricity and public taps were provided to these houses. Although electricity came to KGF in 1902, it was provided to the workers after 74 years. Nearly 1000 houses were built in 1984-85 to commemorate the centenary of the mines, but electricity and water were not provided. There were no roads. The colonies of the workers were spread out over tens of square kilometers but the total length of internal roads was only 55 kilometers. No periodic repairs were done. There is no other company which treated its workers so badly as the John Taylor Company. The workers, who toiled to give 800 tonnes of gold to the country, got only the following facilities as listed by the company. Houses were repaired in 1984-85.

Details of house repairs	No. of houses
House repairs	67
AC sheet houses repaired	432
Mangalore tiles laid to bamboo house	50
AC sheets fixed to bamboo house	2896
Foundation lay to new houses	1178
Total length of cement drainage	33926 m
Dust bins	215
Providing flush out latrines	304
Drilling tube wells	16
Road repairs	8.57 km

Water was supplied from Bethamangala Tank which is 10 km away. Its water was exclusively used for mining and not even a drop was allowed for the use of agriculture / villagers. Later on, water was provided to Robertsonpet and Andersonpet. The same water was used for supply to BEML, which started in 1960 and to Bharathnagar BEML town.

In the mines area, the total drainage length was nearly 200 km. But at most of the places, the sewage was flowing on the roads. There was connectivity to the dirt coming out of many of the camp houses. Garbage bins were kept here and there but there was no periodic cleaning done. In later days, public toilets were constructed but without proper septic tanks. Till the closure of the mines, the night soil collected in the public toilets was cleaned manually by the Madigas of Andhra Pradesh in most

deplorable condition. The way this modern mining company treated these people caused revulsion. As the nearby Robertsonpet, Andersonpet and Bharathnagar grew more than the mining town, the water supply from Bethamnagala was not at all adequate. In 1978, near Nagavaram Tank, several bore wells were drilled. The water shortage was mitigated by drilling bore wells in other tank beds, valleys and Bethamangala tank also. But, all these efforts did not succeed in fully quenching the thirst of these townships.

The mines are fully closed now and the camps are deserted and are in ruins. Without any alternative, some people are staying in some houses here and there but without any facilities. Electricity has been cut off and water problem continues. Every day tankers supply water to Robertsonpet, Andersonpet and Bharathnagar. Everyone, from top to bottom, is purchasing drinking water at the rate of 50 paise to 1 rupee per pot. Time alone will decide the state of affairs in the coming days (Centenary Souvenir, 1980)⁸.

Robertsonpet and Andersonpet

Slightly away from the mines colonies, a new extension came up named after a British Army Officer Col. Donald Robertson, who played a major role in developing this township. In the beginning only Britishers were living here. Later on, some Anglo Indians also joined them. All those who settled here and those who came in touch with them adopted the British and Anglo Indian life style. The Anglo Indians were given supervisory jobs. The Britishers who married Indian women, arranged for jobs to their relatives. When the Mysore Maharaja, Sri Krishna Rajendra Wodeyar visited KGF in 1913, a road was named after him. At about 2 km distance from Robertsonpet a new locality was started by a foreign liquor merchant Anderson and hence that name Andersonpet. As beer imported from England was sold here, it was nick named as Beer-shop.

After the World Wars, nearly 400 Britishers and Italians came here and built houses for settling down. All of them had cars and other modern equipments, and converted this area into 'Little England'. Among them nobody belonged to the companies. These settlers did not allow any Anglo Indians to stay here. There was discrimination between them. Many types of facilities cropped up in this locality. Christmas was celebrated in a grand manner every year. All types of special articles imported from England were sold in a warehouse nearby.

Buses, motors, cars, lorries, two wheelers started plying in the town. Those who were riding horses started moving on cycles, two wheelers and motor cars. Cars were available for 500 rupees, whereas cycle was costing 20 rupees, two wheelers for 100 rupees, and wall clock for 6 rupees, gold coated western clock for 6 rupees, and Kodak Camera was available for 6 rupees. One gallon (4.5 liters) of petrol was costing



Fig.21. King George Hall: Constructed to commemorate in memory of King Edward George visit to KGF in 1905

12 annas. China ceramic pottery, American radios, Italian music instruments, German electric gadgets and tailoring machines, were available at cheap rates in the town. All these items were used by the rich Europeans only those who returned from war and some well to do people.

Between 1900 and 1920, in Robertsonpet, new roads, hospitals, schools, Travelers Bungalow, PWD guest house, market complex, etc., came up. In the Lakshmipathi Hall (Olympia Cinema Hall) slides were shown with lantern light. Those days, cinema was not there. Under lantern light, music concerts and dramas were also held.

The people who were working in these extensions and working in the bungalows of the mines officers and working with Britishers learnt good English. Most of the butlers were Tamilians and they taught Tamil to Britishers. They learnt the art of making British and Italian types of food and snacks. The bakers, shoe makers, photographers, dhobis, vegetable sellers, gardeners, tea boys, security guards, etc., were in touch with the Whites.

There are two parts in the Robertsonpet Market. In one portion, there are wide roads and well arranged shops selling all sorts of consumer goods, vegetables, fruits and groceries. Britishers, rich people, marwaris and contractors were going there. In rear portion of the market, decayed vegetables, old cloths, adulterated goods for workers and poor were sold. There was foul smell all around. The village economy of the surrounding areas was also improving as the mines grew. They were getting good prices for their agricultural produce. Bangarpet, located on the Bangalore-Chennai Railway Line, which is 10 km away from KGF developed into a big town.

Gold Panning

The earth is a giant body made up of 92 stable elements of which gold is also one. Its abundance in the outer crust (20 to 70km) is 4 ppb (parts per billion). Gold is generally distributed in small abundances in almost all the rock types, but more so in two rock types namely in primary and in secondary sources (alluvium and deltaic deposits). The second type is called Placer deposits.

The rocks on the surface of the earth are weathered due to natural process such as rain water, wind, sunlight, ice, snow, etc. The hard rocks are reduced to softer weathered products including soil. In this process, some of the chemical elements are released into water. The water carries it either in solution or as debris for long distances and the debris gets dumped or deposited at knick points due to change in flow regimes. Thus, gold gets released from its primary resources and get concentrated as placer



Fig.22. Gold panning by local inhabitants

deposits. As gold is heavier than other metals, it moves slowly, relatively, on the river bed and gets accumulated in flood plains or along the river bed in bars, etc. When the gold particles / grains get exposed, under sunlight, give a sparkle which attracts the people. Probably, this is how the first observation of gold by primitive man might have happened. Gold was known to man before iron and copper. That's because it is easy to separate from the loose river alluvium by simple washing and panning.

The earliest man, roaming in jungles, was searching for shelters to save himself from rain, cold and caves became his natural shelter. Living with nature, he got scared because of the fierceness of natural events like earthquakes, volcanoes, tsunamis,

lightning, thunder, deluge, floods, etc. He must have thought that all these things happened due to some unseen, unknown force and he started worshiping that force as God. To escape from the dreaded effect of these events, he resorted to some practices with some beliefs. Somehow he developed a feeling that these forces trouble the perfect bodies of human beings, who do not have any imperfection. To avoid such troubles, he started making perforations in his ears, noses, lips, etc. such holes were getting sealed after some time. To prevent it, he started putting sticks, weeds, thin bones of animals, feathers, etc. This practice in course of time led to use gold, silver, diamond ornaments.

The early man must have searched for the primary source of gold and even did shallow surface rat hole type of ancient mining to extract gold. Later, with advanced civilization like Harappa and Mohenjo-Daro, he must have reached hundreds of feet below the surface in places like KGF and Hutti as discussed in earlier chapters. Modern mining method is only 130 years old. Among them are the Mines in Africa, India, Australia, America and China. These mines descended down to +10,000 feet after the invention of electricity.

Hundreds of Panner's families can be seen even today in Nilgiris in Tamil Nadu, Ramagiri in Andhra Pradesh, Bihar and Uttar Pradesh, especially in the Gangetic plains. Such families are there in other parts of the world also. Several such families can be seen in the gold occurring areas in the greenstone belts of Karnataka such as KGF, Hutti, Gadag, Chitradurga, Kempinakote, etc. Only one lithograph could be seen near Lakshmeshwar near Gadag narrating panning method and about panners. Such a record is not seen anywhere in the world.

Gold gets separated due to weathering of the auriferous rocks and gets concentrated due to transportation and accumulation by stream water. After processing the ore containing gold, the tailings or wastes are dumped near mines. These dumps have little gold because 100% gold could not be recovered due to inefficiency of the method employed. Such dumps are panned by panners who wash the mine tailing in the depressions where water is available close to dumps and separate the minute gold particles and grains. They mix the tailing material and water in a wooden pan and slowly start jigging manually. By repeating this process and every time by removing the lighter material⁷, heavier gold grains accumulate at the bottom of the wooden pan. It is taken out very carefully and is mixed with mercury so that only pure gold is amalgamated into mercury. Then, this amalgam is heated when mercury boils and evaporates leaving behind pure gold.

By evening, this gold, separated by panners and their families is sold to merchants or agents. They earn from tens or hundreds of rupees depending on their luck. But, they get paid only 1/4th of the actual price of gold. The rest is swallowed by the merchants or agents. Such earnings are enough for the livelihood of their families. The irony is that, there is not even a single strand of gold on their females even

though they work on gold throughout their lives. This is a part of civilizations tragedy (Gowda, A.M.S. & Shenoi, B.V., 1980)¹.

References

1. Gowda, A.M.S & Shenoi, B.V. (1980) History of the KGF Hospital from its inception - Centenary souvenir. BGML. KGF.
2. Rao, M.H.R. (1980) Resume in Mines. Centenary Souvenir. BGML. KGF.
3. Menon, A.M. (1980) Electricity supply to KGF - A brief Review from the beginning to the present day. Centenary souvenir. BGML, KGF.
4. Krishnamurthy, R. (1980) A review of rock mechanism research on the problems of stability of underground workings in KGF. Vol.2 and Centenary Souvenir. BGML. KGF.
5. Satyapal, A. (1980) A night in 1949. Centenary Souvenir. BGML. KGF.
6. Krinshnaji Rao, B.V. (1980) Signaling equipment for use in Mines. Centenary Souvenir. BGML. KGF.
7. Raghavan, G.V. (1980) The workshops of Bharat Gold Mines Ltd., Centenary Souvenir. BGML. KGF. 1980.
8. Centenary Souvenir (1980) BGML. KGF.

Chapter 6

Remaining Assets and Alternative Plans

With the total closure of the gold mines the workers who were associated with the company in various capacities became jobless. They were facing uncertain future and for their families hard days ahead. The Govt. had no plans for any alternative project and the future of workers remained dark like the tunnels in the mines where they had toiled with their sweat and blood. All these questions are haunting the workers in KGF.

Most of the ores with grades of 3 to 5 gm per tonne were not mined in KGF. The reason being the cost of extraction of gold from 3 to 5 grams per tonne ore is much more than the cost of gold per gram in 2001. According to an estimate, nearly 7.6 million tonnes of ore with an average of 3 gm per tonne is available in Champion Reef Mines. The length of the remaining portion of the Champion Reef is 7615 m, vertical depth is 615 m, inclined depth is 700 m, average dip is 60° East and the average width of the reef is 1 meter.

i.e., $7615 \times 700 = 53,30,500$ sq mts.

Volume 53,30,500 cu m assuming 1 meter thickness.

Total available ore = $53,30,500 \times 2.6$ (quartz specific gravity)
= 1,38,59,300 about 13.9 million tonnes.

Excluding the barren portion excavated during the mining, 7.6 million tonnes of auriferous ore is available at an average of 3 gm per tonne.

This pertains to Champion Reefs Mines only. Several parallel, minor reefs in Champion Zone and other 25 reefs with average moderate grades are not at all taken into consideration by the company while projecting the reserves. In addition to this, enough good grades of ore is available in Bisanattam, Mallappanakonda and Chigara-gunta mines and these mines can be started any time as some initial development already exists. Presently the gold price in market is nearly 2750 rupees per 1 gram. Nearly 350 to 500 workers can be engaged if these mines are started. Enough ore with 3 to 5 gm per tonne is available in these mines.

Nearly 50 million tonnes of ore have been processed over a period of 121 years and the tailing with cyanide contamination is piled up as mounds in and around KGF. Because of the insufficiency of the suitable technology employed for separation of gold during those years, a part of the gold has remained in the tailings. It is found that an average of 1 to 0.7 gm per tonne of gold is there in the tailings. By heap leaching method, it is possible to extract 0.3 to 0.7 gm per tonne from these tailings, which is not feasible because of the present technology in India. Another problem is that it will further worsen the environment which is already affecting KGF with cyanide related diseases.

Left over Gold in Mines*¹

Name of the mine	Ore in (million tonnes)	Gold Grade average Content (in grams/tonne)
Nandidroog	0.88	4.61
Chigaraguntas	2.00	2.35 to 5.84
Bisanattam	0.08	5.95
Champion Reef	7.6	3.00
Mysore	N A	—
Yepamana	3-6	>1.0

In 1994, BGML provided the following details at the time of proposals for leasing out.

Mines names	Million tonnes of ore with gram per tonne
1 Nandidroog, Mysore and Champion Reefs	1.352mt / 5.04 gm/t
2 Old Bisanattam	0.101 mt/ 5 gm/t
3 Chigaragunta	2.107 mt/mt5.7 gm/t
4 Mysore	0.773 mt/ 2.48 gm/t
5 Yepamana	0.368 mt/ 3.7 gm/t

Gold in Mine tailings*¹

Name of the Dump	Tonnes	Gold Grade in gm/t
Mysore Mines - South	2723490	0.62
Mysore Mines - North	7003780	0.56
Near Carpentry Shop	2837460	0.70
Champion Reefs	4360400	0.55
Oorgaum	2382910	0.74
Kennedy's Lane	11743620	0.89
Balaghat	808740	0.76
Total / average grade	31860400	0.72

Besides these dumps, there are several dumps all around.

Gold Mines South of KGF**1) Chigaragunta (Andhra Pradesh)**

This is located at the southern end of the Kolar Schist Belt at a distance of 30 km in Andhra Pradesh. There are number of ancient workings along several parallel reefs. As it is thickly forested, it had remained unnoticed for several years after the commencement of KGF Mines. In 1980s GSI scientists carried out extensive exploration and identified the deposits. GSI and MECL carried out drilling work here. Based on this work BGML did shaft sinking and started mining in 1995. The auriferous zones are 5 to 6 feet wide and are found to continue for greater depths. In the first two months, nearly 1275 tonnes of ore were excavated with an average gold grade of 2.35 gm/t. There are 3 parallel auriferous mineralized zones and it is estimated that a total of 1.99 million tonnes of ore is available. As it is a small scale mine, the cost of establishing a separate mill would be unfeasible and that's why the ore was transported to KGF.

2) Yepamana Mines

Since the price of gold in the International Market was very low at that time, KGF companies did not show any interest towards the lower grade gold deposits around KGF. BGML started thinking about these deposits in its 5th Plan. BGML for the first time started mining at Yepamana area.

3) Ramagiri Mines (Andhra Pradesh)

Some ancient workings were discovered at Ramagiri, Anantapur District in

Andhra Pradesh. The earlier phase of mining was done here between 1960 and 1970 and was closed due to non supportive gold prices. Compared to KGF it was not much deepened. The cost of milling was not high when compared to that of KGF but the grades were low. In 1984, it was estimated that it was costing Rs.368 per tonne of ore processing. But, at that time the cost of gold in the market was only Rs.90. During April to June 1985, 5360 tonnes of ore was taken out. It had an average grade of 2.87 gm/t.

These mines faced lot of problems after commencement of mining, due to lack of electricity and water. As this region experienced drought for several years continuously, the mines suffered quite a lot. The company constructed a dam near the mines to collect water for the mines. 2.5 tonnes of water was required for processing 1 tonne of ore. With the help of closed circuit method, the mines learnt to process 1 tonne of ore with 1 tonne of water. Even then, the operation was uneconomical and mines were closed.

KGF was a highly profitable company in the country once upon a time. It had a very systematic workforce. KGF mine had an untimely and premature closure due to the step motherly treatment of the Govt., border negligence, social inequality and local politics. In 1930, a Mine Maistry had asked an IAS Officer in Tamil as '*Enna Saami, Unga Mysore Govt. thangathai Poi vellekkaranukku khuduthu irumbai nondran?*' (Sir, why does your Mysore Government give away gold to the whiteman and scratching for iron?) (Vinodhkumar C.P., Revathi P.G. et al., 1998)². During that time KGF was under British control. After decidedly defeating Tipu Sultan in 1799, the Britishers were lent support by the traitor Kings of Golconda Sultans, Maratha, Coorg, Madras Presidency and several small time Chieftains. After Tipu Sultan, there was nobody to defend Kannada speaking areas. The Britishers distributed Mysore State to all those who had lent support to them, like distributing chops of killed lamb. Bidar, Raichur, Gulbarga were given to Nizams, Belgaum, Hubli-Dharwad area to Mumbai province, South Mysore District were given to Madras Presidency. The remaining districts were given to Mysore and Coorg Kingdoms. To reunite all these areas it took several movements and sacrifices by many selfless people to form the unified Mysore State in 1956.

BGML had opened Mysore Mines and Hosur Mines in Gadag Gold Fields for some years, outside KGF. Hutti Gold Mines did some opencast mining in Ajjanahalli in Tumkur District. BGML worked for a few months in Kempinakote in Hassan District and stopped due to some reasons of habitat nearby. Presently, in Hutti Gold Fields, mining is going on in three areas: Hutti, Hira-Buddini and Uti. There are more than 10 gold deposits with 3.0 to 7.0 gm/tonne grades in Hutti area. All are small scale gold deposits and these deposits were explored by GSI.

ALTERNATIVE PROJECTS

Underground Water Dams

After closing mining in KGF, the different tunnels got inundated with water. The depth of the mines is 3230m (13500 feet). Altogether a total of 50 million tonnes of ore has been excavated from 1647 km length of tunneling. According to an estimate 12-15 million cubic meters of water has accumulated? During the operation of all the KGF Mines, on an average of 91,37,460 liters of water was pumped out daily. It takes several crores of rupees to build a dam and its canal network on surface. Here, in KGF, both dam and water are there. What is required is canal network. The ground water level in Kolar District has already gone down and in the coming days there will be acute shortage of drinking water. The farmers are facing the hardship. What is needed at the moment is to come up with a few good projects to utilize this water to convert this dry land to paradise of greenery. According to an estimate, the average temperature of the mine water is 30° centigrade and it could be used for hydroelectric/thermal power generation as per some scientists.

When the mining started, shafts were sunk and then lateral development took place. In the process, the substratum water was dropping down to the levels and drives and was gradually flowing towards the shafts, which would obstruct the movement of cages. It was very difficult to stop this flow of water. John Taylor appointed one expert engineer to attend to this problem. He came up with special projects and constructed underground dams at suitable places for the accumulation of water, so that there was no danger to mining. Later high capacity pumps were pumping out this water.

At 1100 feet level, all the shafts were connected by a 7 feet diameter tunnel. Both the ends of these tunnels were closed by concrete and this itself was called a dam inside the mines. Pump houses were constructed nearby for pumping out water continuously. That water was stored in large tanks here and there at elevated places and then it was supplied to all the colonies of mines area. There are similar underground dams in Gifford, Tenants and Glen Shafts. Now all of them are filled to the brim (Purushothaman, N.R., 2002)³.

Kolar: District of Tanks

Kolar is known for its irrigational tanks. No other district has so many tanks. There are about 4000 tanks in the district. In recent times, Groundwater table has gone down to deeper levels, probably the deepest in Karnataka. Although 5 rivers originate in the district all of them carry water to the adjacent states and there is no use to the district. This district receives minimum rainfall as it comes under the rain-shadow area of south India. Thus, the rivers have dried up and the forests have

disappeared. The land has turned out barren. There is a dire need for water today for cultivation and drinking. If the accumulated water in the mines is properly utilized, there is no doubt that the district will be benefited. At least a few taluks can be provided with this water through canal networks using natural gradients, so that cultivation can be stepped up. Also, water can be supplied to the irrigational tanks through the natural drainage. It will help cultivation and also in increasing the ground water table through percolation. The 12500 acres of mines area can be brought under forest / cultivation / horticulture, etc.

Hydrothermal Electric Project

It is found that the average temperature of mines water is 30° C. At 10,000 feet depth, it is found to be 60° C. But, on an average, the temperature is 30° C. Is it possible to produce electricity by using this water? Some scientists say it is possible. Delhi based scientists have got an idea like this one. It is learnt that the Govt. is working on this idea. In course of time several such ideas do keep cropping up. But they end up in the files of Vidhana Soudha or the District Commissioner. If any politician or a bureaucrat has special interest in it, it will come out. Or the NGOs and the intellectuals have to join with the citizens to fight for such projects. Then only, they will come into reality (Purushothaman, N.R., 2002)³.

Presently, to get solar energy, 30° C temperature of sun's rays is enough. The cost of the equipment for this purpose is not at all high. The experts believe that lot of energy can be produced from this water at a very reasonable price. If this idea materializes, at least a few taluks can be provided with both water and electricity.

Floataction

This is a technical method of separating the gold from ore. As the gold production came down in Champion Mines, the Nandidroog Mines ore production was started. As this ore of gold mixed/locked up in chalcopyrite, pyrite and arsenopyrite, it was not possible to extract gold by the usual methods. This refractory type of ore was subjected to special processing which was costing more. By treating the ores from Champion Mines and also from Nandidroog Mines in the same mill, the tailing losses were 0.4 g/t and 0.8 g/t respectively. That way, excess losses were there. If the two ores were separately treated in different mills, more gold could have been earned. But, the mine administration had not worked on this idea.

Even if some gold was lost in the tailings there was not of much loss when the grades were high. But, in the 1980s, when the grades were 2.8 to 3 g/t, no action was taken by the company. Chari had questioned this in his report. At a time when gold is processed by using modern methods of cyanidization, why the company retained

gravity separation method? The company had chalked out a plan for floatation method for which they asked for a grant of two crore rupees. It was estimated that an additional 0.4 to 0.3 g/t could further be retrieved, which would have resulted in one crore rupees more profit per annum. The grant could have been recovered in 2 years. But, the Govt. did not release the amount.

Selection of Ore

Another problem in mining was, the barren rock adjacent to the auriferous quartz reef on both the sides had to be invariably blended which was leading to losses. The gold reefs in KGF had a width of 1 m in general some had 30 m width also at places. Some reefs are 1 to 2 km in length, extending to a depth of more than 2000 m. Their extent was estimated in the beginning by drilling from surface. Later, shafts were sunk to deeper levels from different levels and drives were developed to reach the reefs. Detailed sampling was done to know the distribution of gold in the reefs at different levels. Accordingly stoping was done leaving pillars as support, by blasting in the holes drilled by hand jumpers. The separated boulders were further reduced to convenient sizes to handle and to load on to trolleys. Finally the ore was hauled up. In this process, some barren boulders were also getting mixed up as it is not possible to separate out rich, lean and barren ore inside the mines. By treating such extra material, additional electricity and water were wasted. In spite of any amount of care, some losses were there.

This was going on since 1980. Later on, a special machine was procured to separate out barren rocks. By doing this the losses were reduced, leading to an increase in gold production by 36%. Nearly 95.8% of gold content in the ore was recovered. Had this method been adopted since the beginning, crores of rupees worth of gold could have been earned and the cost on production could have been reduced.

Scheelite Reserves

GSI carried out detailed work on mine tailings and revealed that lot of scheelite was present in the dumps. A scheelite separation unit was started in 1960 by which 16 tonnes of scheelite was produced. It had to be abandoned as it was not profitable. Scheelite is a mineral of tungsten. It is chemically an admixture of calcium and tungsten. Tungsten is very useful in artillery, electrical and chemical industries. It is also used in making special quality steel and in manufacturing tungsten carbide which is used for drilling bits.

Effects of Mining

Every commodity required for modern industry, like gold, silver, copper, diamond,

coal, iron, limestone, granites, etc., are extricated from the earth's interior by mining. There are two types of mining (1) subsurface / deep mines and (2) open cast mines. Both forms of mining led to deforestation and affected wild life. The surrounding area, air, water and land got polluted besides noise pollution leading to disastrous effect on the health of the human beings.

For example, gold mining of Karnataka, iron ore mines of Bailadila of Madhya Pradesh, iron and manganese mines of Karnataka, lead and zinc mines of Rajasthan, coal mines of Bihar and Orissa, and several hundreds of granite quarries all over the country. The mine pollution can be categorized mainly into two (1) air, water, land, forest and noise pollution around mines and (2) severe effects on the health of human beings and dwindling wild life.

The elements, water and air have to be maintained in nature. The forests are like the factories of oxygen which determines the inhaling / exhaling of creatures in the world. Due to deforestation, the oxygen content decreases and the carbon dioxide level increases in the atmosphere, thereby affecting the environment. The evergreen forests and the fertile soils are converted to unproductive barren lands due to mining in few years. The cultivable lands are destroyed and the production of grains and cereals comes down. The water in wells, tanks, lakes around deep mines gets sucked into mines and eventually dries up.

The aesthetically enchanting green valleys and forests will disappear: giving rise to dumps of wasteful rocks and soils. The Airoli peak in Kudremukh area had an elevation of 1284 m above MSL, but today they are reduced so much beyond recognition due to iron ore mining. If the forests are destroyed and the hills are reduced in height, how can the rain bearing clouds are stopped to rain in that area. The natural process gets imbalanced and that area becomes a drought hit barren land.

The cyanide used in the processing of gold ore is a chemical substance. It casts disasters on the human body. Wherever it falls, the land loses its fertility and becomes barren. The water tanks surrounding KGF and for nearly 25 km in SE direction along the streams, the entire area is silted up with cyanide mixed grey soil. The rainwater from KGF area flows in SE direction to join Pennar River which is a tributary of Cauvery River. Thousands of acres of agricultural land are converted into barren land.

The main diseases due to air pollution / mine pollution are cough, asthma, silicosis, cancer, etc. The silica particles enter the human system through air, water, and food substances. The people living in mining areas develop eye, nose and throat problems. After closing the gold mines, the mines colonies are not at all maintained. The whole township looks like a ghost town.

For our modern living, we need gold, silver, diamond, iron, manganese, petrol, etc. All the minerals occurring in nature are useful to mankind in one way or the other. That's why we have to do mining of these minerals. We have to adopt certain

precautionary measures so that the damage to the ecosystem around the mines can be controlled. Care should be taken to see that loose overburden material does not move to nearby places by putting up retaining walls. The mining industry can prevail only for a few years or few decades but fertile soil and lakes should not be destroyed. The advanced countries, in spite of having enough money and technology, are repenting for having created environmental degradation. A developing country like ours, already thousands of acres of land has been degraded due to mining. Our responsibility is to preserve the nature in all its realms like air, water and forest and that will be a gift to our next generation (Ramakrishna Reddy, P.).⁵

Mine Tailings

Even if all the doors and windows of the houses in KGF township are closed, somehow the cyanide mixed powder peeps in and settles on all things. Also, all the shops, schools, colleges, public offices and bamboo huts are covered by thin dust. The housewives have to keep on dusting everything in the house every day. The dishes and food items have to be well covered. During windy days, KGF looks like a desert or a war zone because of the all pervading dust. A research conducted by Bangalore University has recorded the statements of many people about the respiratory tract problems due to the inhaling of dust particles, generally of 74 micrometer size or finer. It is also believed that the arsenic content in the dust is also responsible for breathing problems and it has been confirmed by doctors (Vinodhkumar, C.P., Revathi, P.G. et al., 1998)².



Fig.23. Mine tailing dumps (locally referred as cyanide dumps) dissected by flowing rain water



Fig.24. Mine tailing dumps in the heart of KGF



Fig.25. Old Mine Shafts caved in tailing dumps due to heavy rains as sinkholes

Water Pollution

The mine tailings are spread over nearly 10% of the total area of KGF, sometimes to a height of more than 100 feet. The research conducted on water samples collected from bore wells and shafts in KGF, has indicated the presence of arsenic, sulfates, chlorides, bicarbonates, calcium, sodium, fluoride and magnesium in the water. There are several elements associated with gold in the mines and all of them get dissolved in substratum water because of chemical alteration. Some of the important toxic elements are mercury, lead, zinc, copper, silver, bismuth, etc. The cyanide used for separating gold also gets mixed up with groundwater.

Some of the findings of the research conducted in 1977-78 are as follows: In the surrounding area of the gold mines schistose rocks, granites and gneisses are present which had potable water before mining commenced. In the tube well water, in mining area, there are several toxic elements but they can be treated with chlorine to remove

sulfates, chlorates and calcium compounds to make it fit for drinking. But the water collected from shafts and tunnels contains more of arsenic, sulfates, fluorine, potassium, chlorides, bicarbonates, calcium, sodium, and magnesium which determine the higher hardness of water (Indian Express, 13.8.2001)⁴. But this water also can be treated and made use for drinking.

In 1975, 1976 and 1977, in the civil hospital of Robertsonpet, 153611, 158528 and 161700 people respectively had complained of lung related diseases. The particle size of the cyanide mixed dust in the dumps is from 2 microns to 74 microns (76%) and more than 74 (24%). This minute dust enters the human system through nose and ears. Some companies are planning to extract gold from these dumps. Some of the workers and union leaders are also in favor of leaching gold from dumps. If it happens, there is no doubt that the entire population in Robertsonpet, Andersonpet, Oorgaumpet and Bharathnagar and mining colonies will be in deep trouble (Purushothaman, N.R., 2002).³

International Mines Museum and International Mines Institute

This world famous Kolar Gold Fields need an immediate attention by establishing an International mining museum and a mining institution here at KGF. Presently, we are seeing number of Mining Museums and Mining Institutions as wonderful tourist attractions all over the world. These are not only museums but they are the reconstruction of the history of mankind and mining. The World Museum of Butte's Copper Mining (America) is one of the few museums in the world located on an actual mine yard, with 50 exhibit buildings, countless artifacts, and 66 primary exhibits in the mine yard. By walking the streets and venturing to the depths of the mine, you can almost experience as if you are in underground mines. The German Mining Museum in Bochum is another one as most visited museum in Germany with around 400,000 visitors per year. America, Australia, Japan even in South Africa there are number of beautiful Mining Museums. The Gold rush museum, Bohemia gold mining, Gympie gold mining, and Auburn gold mining museums of America and Cape Town gold mining museum and many more attractive Mining Museums are there in the world.

The Central Govt. should take initiative to establish the museum here at KGF. This museum should have the entire historical background – discovery of gold, working conditions since beginning to the end, cultural development, scientific equipments from ancient artifacts to recent; Mill – processing of gold, shafts – tunnels, mining transport system; Bungalows – mining camps/colonies; an overall History of Mines Museum should come up here at KGF. If we do not establish our 'MOTHER OF MINES' ancient history as a museum, definitely its hard history will go into the dust. The Central Govt. and concerned authorities have to take initiative immediately.

References

1. *Prasad, S.D. (2003) Mine closure panning - A case study of Kolar Gold Fields, 22-23 Jan, 2003, p.3.
2. Vinodhkumar C.P, Revathi, P.G and Mohan, K.T. (1988) Kolar Gold Mines: An unfinished Biography of Colonialism by Economic and political weekly, June 13, 1998. p.14.
3. Purushothaman, N.R. (2002) *Samyukta Karnataka*. Kannada special issue.
4. Indian Express, 13.8.2001.
5. Ramakrishna Reddy, P. (1980) Environmental geological studies in the KGF area, p-423-482: Kolar Gold Mines Centenary celebrations & Seminar on Recent trends in Gold Mines practice, vol-2.

PART 2

Socio-Economic Impact of Kolar Gold Mining

Chapter 7

Religion, Culture and Social Activities

General

The Kolar Gold Mines are unique in many senses. It is the first modern mining for gold in India entirely planned and implemented by a British company 'John Taylor and Sons'. This company employed poor unskilled dalit laborers from distant villages as well as neighboring areas who had little education and were backward due to long neglect and exploitation. For them it was a new experience and exposure to a totally alien profession. The foreign controlled mining company in a princely state was not on a social mission but was engaged on a profit making mining activity. The laborers besides being poor were superstitious, hesitant and even suspicious of the activity of the company. There was language barrier and a hiatus in style of living among the management and workers. As the mining progressed the hazards of working in such an enterprise started unfolding to the workers. The workers, though, started receiving the monetary benefits for their hard labor, they could see their inferior and discriminatory status, they started feeling certain remorse and even hardship. It is equally important in order to appreciate the workers' feelings we have to browse through a bit of history, religion and culture of people of the gold-mining district of Kolar.

From the early time the people of Kolar Gold Mining areas and neighboring areas, were very superstitious and believed in village deities and local Gods. It is learnt that the Goddess of Plague, Pidariyamma's temple was first constructed with bricks and later during the reign of Chola King Raja Raja it was demolished and rebuilt with stones. In 1070 AD, the Chola King Rajendra Chola chased Chalukya's Vikkala King up to Thunga-Bhadra. During this time, it was said that hundreds of elephants and horses had died on the way.

Varaha is one of the reincarnations of Shri Vishnu. The Chola Kings were worshipping him and hence have embossed his figure on gold coins. That's probably the reason for calling the gold coins as Varahas. In 1880 AD, pure silver coins

with the portrait of British Queen Elizabeth were minted 0.8 gm of gold was costing 13 such silver coins between 1880 and 1900 AD (Seetharaman, K.S., 1989)¹.

The Shaiva King Bitti Deva under the influence of Sri Ramanujacharya became a Vaishnavite and changed his name to Vishnuvardhana. He was ruling this area. After Vishnuvardhana, a King by name Narasimha and his commander Sockkimaiah settled at Nangali in 1155 AD. When the tank built across the Palar River at Vijaya- satyamangalam (present Bethamangala) breached, Sockkimaiah got it repaired.

During the period 1336-1565 AD, the area was ruled by chieftains under the Vijayanagara. Thodaramal, a Minister in the court of Mogul King Akbar, after viewing the famous statue of Anjaneya at Mulubagilu, offered the land around the temple and went back. There is a beautiful temple of Somasundereswara at a distance of 6 km from Mulubagilu. Shiva and Parvathi temples are there on a hillock near Avani. A temple for Sita Devi is on the top of the hillock and the legend is that Lava and Kusha were born here. It is also said that Lava and Kusha faced their father Lord Rama in a war because of tying the holy Ashwamedha Yaga horse which was sent from Ayodhya to declare the supremacy of Rama. There is a place called Budikote, about 15 km from KGF which is the birth place of Hyder Ali, the father of the Tiger of Mysore Tipu Sultan. Thus, this area was ruled by both father and son. This area came under the rule of third Jayachamaraja Wodeyar, when the British killed Tipu Sultan in 1799 AD. The British were ruling Mysore State between 1831 and 1881 AD. They introduced several reforms in this area.

Religion and Gods

In the mining district of KGF, the workers and their dependents, with their exposure to new environment and cultural contacts, started looking at the diversity of religious practices.

Initially the people were worshipping local gods and goddesses such as *Mariamma*, *Gangamma*, *Patalamma*, *Byatarayaswamy*, etc. During the times of epidemics such as Plague, Chicken Pox, Cholera, etc. they were worshipping these gods and were feeding the people with boiled rice water (*Ganji*). There used to be animal sacrifice also on some important occasions. All these gods were of the Dravidian culture and were supposed to protect the KGF mine workers (Janaki Nair, 1998)¹². It appears that there was a small temple of Mariamma at Marikuppam before 1875 AD. A person by name Challappa who came from North Arcot District offered to construct a big temple to Mariamma for he got a good job. Later on, he became a big contractor and as per his word he constructed a big tower on the temple. Originally she was called Maramma, later on she became Mariamma and Muthumariamma

with the influx of TAMILIAN settlers in the area. The Challappa School in Andersonpet was also built by the same man (Seetharaman, K.S., 1989)¹.

In the mine colonies, prayers were offered to Shiva, Rama, Krishna and Vishnu besides local gods. Some Adi-Dravidas became worshippers of Shiva and Vishnu and practiced Vedic traditions. They also tried to develop a broad outlook. Besides worshipping Murugan, they were also praising the holiness of Vinayaka, Rama and Krishna. Similarly, they were also worshipping Uddandamma and Kaateri goddess (Seetharaman, K.S., 1989)¹.

One Sri Pillai, started a primary school near Namperumal Temple and was teaching the children of Adi-Dravidas. Ramanujalu Naidu, a wood merchant in Robertsonpet used to conduct prayer meetings near his house and thus was able to attract the people towards philosophy (Karnataka State archives)³. He established the Sri Kodandaramaswamy Temple in Robertsonpet in 1908 AD. This temple is the main temple of KGF and it is attracting thousands of people. People belonging to all faiths come together for 9 days and perform the pooja and procession even today in the month of March.

Shaiva and Vaishnava Religions

The Shaivas who came from Tamil Nadu preached that animal sacrifice was not a good practice and were able to stop this practice to some extent. By following these Shaivas, some Adi-Dravida people also initiated themselves by smearing Vibhuthi on the forehead but the stigma of caste and untouchability did not disappear.

A Vishnu follower by name Chinnaswamy, during his discourses used to mock at Shaivites saying that those who believed in Shiva would face catastrophic fate, and would become blind and die a horrific death⁴. By practicing non Brahminical ways, one would disrespect himself, he was teaching thus (Valzinadai Nondichindu)⁴. It was similar to the kidding of Shiva by those who shaved off their heads and mustaches and smeared Vibhuthi on the foreheads. Although the number of converted Adi-Dravida people was less, they had developed self respect. G. Appadurai was writing articles in 'Tamilan' Paper in which he was highlighting the loose ends in the legends of Brahmins (Seetharaman, K.S., 1989)¹. When he wrote an article by the title 'An open letter to Parameshwara' in the same paper, there was a huge demand for it in KGF (Loganathan)⁵. A Buddhist by name, M.P. Shankaraswamy, arranged for a debate in the paper (1928) about 'Hindu Religion is not Panchama's own Religion'. He announced a cash prize for proving it wrong (Loganathan)⁵. G.T. Thangaraju of Champion Mines (1939) published a book, 'The suppressed are not Hindus'.

The articles published in 'Tamilan' paper by the Buddhist Mandalis of Marikuppam and Champion Reef was able to create a new thinking in the minds of the people. All this enabled the local people to identify themselves with the Dravida

movement of Periyar Ramasamy. The Buddhism became strong to the extent of creating threat to Vaishnavas (Seetharaman, K.S., 1989)¹. The lives of some untouchable communities became better to some extent. Adi-Dravidas were the people who were supplying the workers and the material like bricks and stones to the Mines. One Venkataramana Maistry who came from Krishnagiri was able to make a profit of Rs.1000/- per month by supplying sand to the Mines (Valzinadai Nondichindu)⁴.

Y. Murugesan and M.C. Madurai Pillai, were contractors in the beginning and later became Adi-Dravida workers' leaders. Pillai in 1899, had gone to Sri Rangam where he met Srimad Arul Marisamy whom he brought to KGF. He succeeded in converting several Adi-Dravidas to Vaishnava Dharma. Pillai, later became a MLC and also worked as an Honorary Justice of Madras High Court. He died in 1935 (Seetharaman, K.S., 1989)^{1,4}.

Kuppusamy, another contractor who worked between 1900 and 1920 later lost all the money. People fondly remember him even today for his generosity and religious propaganda of Vaishnavism. M.Y. Murugesan, also earned lot of money from contract jobs. Since, he deserted Shaivism to join Vaishnavism, there was a new wave created among workers (Valzinadai Nondichindu)^{1,4}. Similarly, R.S. Das was also a famous contractor. He was the President of Adi-Dravida Mahajana Sabha and also an MLA (Kadams, K.N.)⁶. Nagappa Maistry distributed all his money to the beggars and orphans.

Song of a Worker

As Dalit workers were not treated with love and consideration by the followers of any religions, and as they remained at the fringes of various religions, they had developed to some extent an atheistic attitude. They had composed several songs against the tenets of society:

"Of what use is the existence
if people do not like us?
No Ascetic reaches the Heaven!
No place in the heaven even after
Rigorous Penance!
No use in going to Kashi?" (Valzinadai Nondichindu)⁴

Such songs were a reflection of the desperation the people.

"We do not know
How we came here
How we go back
Had we known
We would have sent a letter to God
We would have offered him Liquor
We would have offered him a cigarette like a friend.
But, our State looks like that of a dead man come alive" (Valzinadai Nondichindu)⁴.

Buddhism

One person by name Ayothi Rao embraced Buddhism under the influence of Col. Ollot of the Madras Adayar Theosophical Society. He came to KGF in 1895 and started spreading the message of Buddhism. He invited some people from Burma and Sri Lanka for the campaign. The local thinker Shivakeshava converted his Advaita Sabha into a Buddha sangh. M.I. Murugesu lent financial assistance to this.

Because of the Christian and Muslim religious campaigns, Buddhism and Hinduism were affected. In 1905, Shaivites established Shivakeshava Advaita Sabha and started their campaign. As ever, the Shaiva and Vaishnava followers were misinterpreting each other and were even arranging debate between their followers (Valzinadai Nondichindu)⁴. When Ayodhi Das Pandit was trying to rejuvenate Buddhism, he took the help of some Shaiva followers (Valzinadai Nondichindu)⁴.

It was more difficult to convert the leaders of any religion than its followers. The efforts of Ayodhi Das Pandit at the end of 19th century and the propaganda by M. Raghavan all over KGF (1903–1907) resulted in changing the minds of M.Y. Murugesan and C. Gurusamy and this enabled Buddhism to gain more popularity (Valzinadai Nondichindu)⁴.

The educational institution of Shivakeshava was converted into Shakya Budha Mandala building. With this, KGF became the Headquarters of Buddhism in South India. Along with Murugesan and Gurusamy, A.P. Periasamy Pulavar, also took Panchasheela Oath in 1907. The monks coming from Sri Lanka, Burma and Thailand were giving discourses in KGF. The propaganda going on between Shaivites and Vaishnavites was started with Buddhism also (Valzinadai Nondichindu)⁴.

That time, in the Shakya Sabha, a debate took place between 'Budhan' and 'Mudhan'. The question was whether to worship a person born in a palace, like any other person, was the right thing? 'One Paise Tamilan' weekly was published by Ayodhi Das Pandithar in Madras from 1907 to 1916. Later, the same paper was published in KGF in the name of Tamilan. He had setup a press called Siddhartha and he used to write about the Theories of Buddhism and Tamil History. Its editor I.N.Iyyakannu Pulavar used to write thought provoking articles on rationalism, self respect etc (SIBA, Annual report)⁷.

In 1917, for the first time, Buddha Mandalis conducted simple marriages without any problems. The couples who got married were getting into traditional understandings (Perumal)⁸. In 1945, it was decided to offer a pendant or a medallion and a chain instead of the 'Thali' for marriages. Thali was rejected saying that it represents slavery. But the Buddha Mandali has explained that any of these acts do not amount to rejecting the traditions of Brahminism (SIBA meeting, 1945)⁹. The Buddha Mandali in 1932 conducted the marriage of a G. Appadoreyar's daughter G. Annapurna with Ratnasabhapathi under Hindu practices. In between 1910 and

1920, Buddhism attained popularity, but later due to scheduled castes, it took a different political turn. As per the census of 1921, there were 1319 Buddhists in Mysore State out of which 1002 people were in KGF (Census of India, 1921)¹⁰. In 1931 census, their number was 920 and later in 1941, it came down to 852 (Statistical abstract of Mysore, 1923-48)¹¹.

Christianity

The Anthony Prayer Hall which started in Hans Cox Colony in Marikuppam was the first Church in the area. Subsequently, Rev. Father Basin started a Catholic Church by the name Jayamathalamma, near the Champion Railway Station. He started a school in a portion of the church. He went to all houses there requesting them to send their children to this school. The Wesleyan Church, setup near Mission Block in Marikuppam became the first Protestant Church (Baktavachsalam, T.I., 1976)².

Some Adi-Dravidas used to keep the photos of Christ and mother Mary and were going to Churches also, all for attaining social equality. But, while taking admission to school, college, and jobs, they were not hiding their identity. Some people belonging to higher castes claimed that they belonged to Adi-Dravidas and got the benefit of reservations. Some religious leaders were trying constantly, since the beginning of the mining in KGF, to attract the people towards their religion. The companies were also providing money to build temples and churches (Janaki Nair, 1998)¹². Way back in 1841 AD, there were Christians in this area and 18% among them belonged to Adi-Dravidas, converted. Also 8% Muslims / Buddhists and 44% backward class people were there. But, the practices of lower and higher castes remained the same. Several religious leaders were striving to attract the people towards their religion.

The Catholic and Protestant Christians who arrived at the time of opening of the mines, succeeded in converting the locals into Christianity. But the European Christians remained exclusive and kept the Adi-Dravida Christians away without any interaction with them. The Anglo Church which began in 1894-95 started spreading the message of Christ in Tamil and English. In 1905, the Europeans started having separate prayer sessions here. In 1887, the Methodist Mission started a school for the children of coolies and servants. The Catholic Mission had started the Anthony Prayer Hall. The Indian Evangelical Lutheran Mission started its work in 1914 AD.

In the 70s and 80s, the Hindu Vedic Religious Practices were on the decline and had almost completely disappeared and more and more people had taken to Christianity. Several families were caught in between Hinduism and Christianity and were practicing both of them. Their names in the schools and colleges were registered as Adi-Dravida Hindu (ADH) whereas they were moving outside with Christian names such as Charles, Robert, Anthony, Kennedy, Lincoln, etc. Father's

name was Ayyasamy whereas his son's name used to be Charles or Roberts. This was leading to ridicule of these people in schools, colleges and Govt. offices. In 1919 AD, the Anjuman-e-Islamia Society and Majlis-e-Islamia Society started their religious work in Robertsonpet. They had totally prohibited drinking and inter religious marriages (Janaki Nair, 1998)¹².

Churches and Anglo Indians

As soon as the Britishers settled in KGF, they built churches, bungalows and clubs. It is said that there are nearly one hundred churches in KGF (now countless). The churches were classified on the basis of color and economic status. That type of discrimination was there in cinema halls and shopping complexes. Nearly 10% of the population of KGF was Indian Christians. All these people were originally of low caste who were converted later. British Protestants had their own churches. They were placing a cross on the European Catholic Churches. Inside the church, on one side the Europeans and on the other side the Anglo Indians were standing for prayers. Near the door where the two sides converge, the converted Indian Christians were standing (Fortnightly report, 1922, KSA).¹³

The Famous Victoria Church

The Victoria Church is the prominent one among all churches in KGF. The bell at its top can be heard even at 10 km distance. People still recollect a thrilling incident that took place in 1952. The Church was full with ladies, gents and children on the morning of 23.01.1952. At that time, a very big rock burst had taken place inside the mines and the entire KGF Township was shaken by its tremors. The flower vases in the church fell down to the floor. The photos on the walls fell down and the windows started rattling. People were immersed in prayers without any awareness of these developments. When they came out of the church after prayers, they were taken aback to see that the tower portion had fallen down. Added to that, the entire building was shifted by five feet. The building was intact although a number of cracks had appeared in the walls. Had the building collapsed hundreds of workers and their families would have perished. Most of the houses had collapsed in the town. The railway station adjacent to the church was also damaged. This church was rebuilt again. This story is often narrated even today.

Anglo Indians

It is learnt that nearly 1500 families from Goa and Kerala came to KGF to assist the Britishers. As these people were not only resembling the Britishers in their color



Fig.26. The Victoria Church, KGF

but also in their living and practices, they were given jobs and also other facilities like education etc., in the mining companies. Separate colonies were started for these people. The Anglo Indians were mainly responsible for the grand celebrations of Christmas in KGF. The whole town used to get ready even one month before Christmas. Their relatives from all over used to reach there for Christmas. Besides religious ceremonies, several music programmes, entertainment programmes, cake shows, sports and games competitions were also conducted. The whole of KGF used to wear a colorful festive look during Christmas. Their life was also as colorful as the Christmas celebrations. Their children were educated in England, Australia, etc., and were employed elsewhere. The Anglo Indians, who were leading a luxurious life like Britishers, had to lose the same after Independence. When the mines management was changed, they lost the earlier perquisites and importance. After losing the stranglehold on KGF the Britishers started leaving KGF one by one. Many families returned to England. Some Anglo Indian families followed them. Some even got converted to Vaishnavism and Buddhism. Rest settled in KGF itself.

The Anglo Indians were not received whole heartedly in England and Australia. As they had identified themselves with the British rule in India they became orphans. Their erstwhile Anglo Indian Colony is today an ordinary Hindu Colony. Almost all Anglo Indians are in financial difficulties. For some families, the money sent by their children is the only source. The condition of the aged is still worse. Although there is no change in the way they dress, talk and behave, the conditions in their houses

reveal that they are in distress. They have the practice of children setting up separate homes after marriage and discontinue the financial links. Thus, many families become helpless.

The elderly Anglo Indian couples are leading their life with the money received from their daughters who are married off at distant places, or from the meager interest earned on bank savings. The young couples who were dancing merrily in parties and festivals are very rare now. Instead, the old people are more in number who are seen visiting churches, markets, doctors, and parks in the evenings. Some have rented a portion of their houses. When they were in position of prosperity they were hesitating to marry Indian Christians, but now they are the ones who are extending them a helping hand. Earlier the Anglo Indians were doing the supervisory jobs when there were innovations in extraction of gold. They were rewarded with several trophies for their achievements. They proudly show these prizes they got during their prime time. They were also good in several fields such as singing, music and dancing. Their band team had won State level and national level laurels. They are famous in army and sports also. The international cricketer Roger Binny is originally from KGF. Famous athlete Kenneth Powel is also from KGF.

The Anglo Indians are not able to provide good education to their children like earlier times. They are mostly working as stenographers and teachers. Some are working as assistants to Marwaris and money lenders. A few have entered State service by learning Kannada. Only about 50 to 60 families are remaining in KGF at present (Purushotham, N.R., 2002)¹⁴.

The older generations talk of earlier times as a better period under the British. All the Mines colonies had all the essential facilities. Plenty of water was supplied. All roads were swept thoroughly. All mine workers were getting rations. Meals, tea and coffee were available in canteens at subsidized rates.

All sorts of problems started cropping one after another after the exit of the Britishers. When our own Govt. was formed after the Independence, our own people started looting the gold mines systematically. By manipulating the production figures, the managers were feeding gold to their bosses in the capital. With that the decline of the mines started. There was a lively atmosphere when the Britishers were here. During weekends, a sort of festival look was created in the BGML Club. All the officers and their families were gathering here. Now everything is gone. Bungalows have become haunting places.

Gulmohar from Madagascar

As May month approaches, the whole of the Gulmohar tree becomes red with flowers and leaves. These flowers are called Mayflowers. These beautiful flowering trees have come all the way from Madagascar Island. When the mining started, John



Fig.27. Gulmohar Trees in mine areas

Taylor tried to bring many officers from Britain and Europe countries. Officers, while going to and returning from England had to go in ships via Cape of Good Hope of Africa. Once due to a typhoon, the ship was anchored near Madagascar.

As they had to stay there for several days, they went on roaming here and there in the Island. As it was the month of May, red Mayflowers were dazzling on tree tops. Attracted by its color, the British officers collected its seeds and brought them to India. They sowed them around their bungalows in KGF. Later, they planted them on both sides of the roads. It is said that these plants were taken from here to the areas of Kolar District, then Mysore District and then to the entire country (Purushotham, N.R., 2002)¹⁴.

Gymkhana Ground

It is learnt that there were many football grounds in KGF and that many were

not there anywhere in India. There were approximately, one hundred grounds. When the mines were at the peak, the BGML Gymkhana Grounds were also abuzz with activities. The Indian Football Federation had recognized this ground. National Level Tournaments were conducted here every year. Several prestigious teams of the country such as Mohun Bagan, Mohammedan Sporting, IAF, IIM, ITI, HMT, etc., were participating. There was a craze for football in KGF. The BGML management was taking the responsibility of arranging the tournament. Several State Level Tournaments in between and National Level Tournaments were taking place throughout the year. National level Bharath Scouts and Guides Jamboree and BGML's Centenary Celebrations were also conducted at the Gymkhana Grounds.

Educationalists and Educational Institutions

Rev. Father Pressian in 1892-95 period founded St. Sebastian and St. Anthony primary schools in association with Jayamatha Church. In 1902, the Protestant Missionary started the Methodist School. The DCM Primary School was started in 1914 in Robertsonpet. This school was co-founded by Pressian and British Police Officer M. Prechers. Sir Baden Powell, for the first time started the Scout Movement in KGF by the name First Robertsonpet Troop. Madurai Pillai, in 1919, started the Namperumal Primary Schools in Robertsonpet and Andersonpet. This became a middle school in 1926. The St. Mary's Primary School started in 1924 later became a High School in 1944. Mysore Govt. started the Govt. Primary School in 1910 and Sanitary Board Boys High School in 1936 in Robertsonpet (Vinodh Kumar, 1997).¹⁵

Challappa's Educational Institution

The Challappa School near Marikuppam has completed one hundred years. Students of this school have joined IAS, IPS and become scientists and technologists. But, the founder of this school, Challappa was an illiterate, who was affixing his left thumb impression as an ordinary laborer. He got elevated to become a contractor under John Taylor. He brought thousands of workers from Tamilnadu to work in the mines. Their children did not have schools to study. The local Hindus were arranging classes for their children in their homes. The laborers children were not allowed in the British schools. Under these circumstances, Challappa started a school under the permission of the British, in the open land adjacent to his house. At one point of time, more than 2000 students were studying in this school. This school had appointed British and Anglo Indian teachers. The teaching in this school was equal to that of any Christian school in KGF. After the death of Challappa, the BGML took over its management.



Fig.28. Students playing in school yard with mine tailings dumps in the background (www.thinkingparticle.com)

In the convent school at Oorgaum, only British and Anglo Indian children were admitted. In the St. Joseph Convent at Champion Reef, there were separate sections for European and other children. Later, the local children were admitted in the Andersonpet St. Mary Vernacular School, Govt. School of Robertsonpet and some other missionary schools.

The British did not think of the education of worker's children, in the beginning. For some years, they themselves were teaching their children, or they were appointing tutors for home tuitions. By seeing the outsiders, the locals also got interest and understood the importance of education. All the workers were doing the transactions with LTI (left hand thumb impressions) and this continued till 1900 AD. In that year, two schools were started by the Robertsonpet Christian Missionary and the State Govt. The books taught in those schools were printed in Chennai. In those books, the British leaders who took part in I and II World Wars were projected as Heroes. The National Anthem was of Britain.

During that time, there were nationalistic struggles and movements all over the country but there was no trace of it in KGF, because the British had full control of the locals. If anybody took part in the freedom struggle indirectly, the neighbors themselves used to inform the British. For this reason, several workers were dismissed from the services and were punished.

According to the Census of 1921, among the population of KGF there were 22.8% children in the age group of 5 to 15 years. Among them 13,700 children belonged to the miner's families, of whom only 4000 children were studying in the schools within the jurisdiction of the Mines and also in the surrounding areas. There were 4 separate schools for the European children and 47 schools for the rest. Out of these 47 schools, 12 schools were Govt. schools, 6 Company Schools, 12 Missionary schools, 4 private/aided schools and 13 Private schools. The male to female ratio was 3:1 and

there were $\frac{3}{4}$ Tamil speaking children. Among them, 40% belonged to Adi-Dravida Community (Sreenivasan, M.A, 1930)¹⁶.

In one of the reports, M.A. Srinivasan has recorded thus: “As the bright eyes of some of the children in front of the camp houses attracted me, I enquired their parents as to why they are not sending their children to schools. One mine worker, scratching his head looked sideways ignoring my words. I put the same question to his wife, she started telling about the nakedness of her children, and said ‘look at this child; he is wearing his father’s shirt, that too only in short underwear. How to send these children to school? The slates are broken down. How to purchase note books?’ saying that, she started cleaning the dirty noses of the children with her saree. Husband chided his wife telling her to mind her work and not to talk unnecessarily. Then, he requested me to get any job for his eldest son. The condition of most of the mine families is the same (Sreenivasan, M.A, 1930).¹⁶

BGML English School

This school was started by Britishers in 1899 AD. Admissions were restricted to the Britishers, Anglo Indians and rich people till 1965. It secured the grant from the State Govt. in 1973 and after that other children were also allowed to join. The children of this school, till 1990, never failed in the exams. But, after 1990, the performance started coming down and it was the time of the loss in the operation of the gold mines also and the parents started getting lesser pay. Also, the facilities to the children were reduced. The school head master Venugopala Rao says “Nearly 20% of the children here are from very poor families. They do not have even note books. Another sad thing is that they are hungry. They pray standing in lines with an empty stomach. They wear the old uniform of last year. They are actually the children of third or fourth generation of mine workers (Sreenivasan, M.A, 1930)¹⁶.

Now they are seen protesting in front of the bungalows of the Managing Director, about their problems. The police are trying to console them. The women folk are waiting for collecting water in plastic containers from the toilet tops of the trains coming from Bangalore at Oorgaum, Champion and Marikuppam Railway stations. After closing the Mines, the water and electricity supplies were cut off (Indian Express, 13.7.2001)¹⁷

KGF First Grade College

In 1962 AD, the then Chief Minister of Mysore State S. Nijalingappa, Education Minister S.R. Kanti and Revenue Minister M.V. Krishnappa had come to KGF to unveil the statue of Mahatma Gandhiji. That time, M.V. Krishnappa requested the Chief Minister to sanction a college for KGF as the children of KGF are not able to

continue their education after the high school. Then the Chief Minister and the education Minister agreed to the proposal and asked him to put-up the proposal through a committee for grants but stipulated the condition that he should take care of the development of the college.

Then, a committee was formed with an IAS Officer Parthasarathi, chairman of sanitary board, as president along with Bapna, G.T.Gopalakrishna, and 9 management officers and trade union leaders as members. The Govt. gave permission for a new college. For the development of the college, the Mines administration agreed to put in $2/3^{\text{rd}}$ and Sanitary Board agreed to put in $1/3^{\text{rd}}$ of the required money. The college started on 07.07.1962 in a vacant bungalow. The mine workers donated their one day salary for the college. Later, an adjacent vacant site was also given for the college. Subsequently, another vacant bungalow nearby was also annexed at the instance of G.H.Sawkar with the NCC Cadets. The Govt. appointed Dr. T. Thimmaiah (the son-in-law of Kengal Hanumanthaiah) as the adhoc principal of the college. He was the Principal of the school of Mines in KGF that time. He shifted, initially, the required furniture, dusters and chalk from the School of Mines. Sawkar had already joined the college as Head of the Geology Department. From then onwards, the Pre-University College started growing into a full pledged First Grade College. In a few following years, arts, science and commerce departments started with all subjects in the college. Sawkar became the Vice Principal in 1967 and Principal in 1972. Dr. Thimmaiah had shown the ways of management for two years and later he left the responsibility to



Fig.29. First Grade College, KGF

Prof. Sawkar. Because of Sawkar's efforts, the college became one of the best college in Karnataka State. The Golden Valley Educational Trust started evening college for employees of the Mines and BEML factory. Later, a new building was constructed and an engineering college was started.

As there was no electricity in the colony quarters, for the convenience of reading at nights, the library of the college was kept open during nights. Professor Sawkar also made arrangement for providing a cup of tea to the students. This dedicated professor once visited America and while walking along a road a jeep stopped all of a sudden beside him. What trouble awaits him, he was not able to comprehend and starting looking up and down. A Police Officer alighted and spoke to Professor after a smart salute 'Sir, I am your old student!' This made the Professor feel happy that his visit to the USA was worth the effort.

Many PUC students from this college used to get direct admission to medical and engineering colleges throughout the state. They also occupied majority of the seats in all the courses of Bangalore University. B.Sc. passed geology students were securing 50% of the seats in the Department of Geology, Bangalore University. Both reserved and general category students were there among them. Seeing this development, some syndicate members objected saying that they are all converted Christians and not Dalits. Sawkar had defended by saying that, (Sawkar in an interview with the writer) 'I do not know all that, they possess scheduled caste certificates; added to that there are rules'. Others kept quiet. Continuing, Sawkar said 'Whenever I came out of the chamber, seeing me, all the students used to run away. I was not allowing them to copy in exams. If anyone committed mistakes, I used to slap them. I was a big 'Goonda' that time'. Sitting aside I said, 'I had seen that Sir'. His retired assistant Doraiswamy was laughing, at a distance. 'No parent came to ask me why I had slapped his son or daughter. I do not think the development of that college is because of me alone. Everyone including peons have contributed', he remembers that period he spent with his students with nostalgia. He came out to see me off up to outer gate, he expressed, 'Probably that is the reason why my students are there all over the world and not only in the country' (Venkatswamy, M.)¹⁸.

References

1. Seetharaman, K.S. (1989) Kolar Thanagavail Varalaru, p.97.
2. Baktavachsalam, T.I. (1976) Wesleyan Methodist Report. 'The origin and development of the protestant Mission in KGF' un-publd. United Theological College, Bangalore
3. Ramanjulu Naidu, G., petition 7th July 1913. File no. 73-13, SI no.1-9, Police, (Karnataka State archives) KSA.
4. Valzinadai Nondichindu, p.7.
5. Loganathan. The Revival of Buddhism in SI, pp.99.
6. Kadams, K.N., Ambedhkar., B.R. – The Emancipator of the Oppressed (Bombay: Popular Prakasan), p.94.

7. A small example of such re-interpretation is provided in the SIBA, Annual report.
8. Perumal. Revival of Tamil Buddhism, p.11.
9. Resolution of the 5th SIBA meeting, 1st April, 1945.
10. Census of India, 1921, Vol, xxiii, part-2, tables.
11. Statistical abstract of Mysore 1923-48, tabe-6.
12. Janki Nair, S. (1998) Miners and Mill hands-work, culture and politics in princely Mysore .p.146.
13. Fortnightly report of the resident of Mysore, 4 Feb, 1922, CRR, KSA.
14. Purushotham, N.R.et.al (2002) Samyuktha Karnataka. Special issue Bangalore.
15. Vinodh Kumar (1997) Interview with Seetharaman, K.S. July 1997. Kolar Gold Mines: An unfinished Biography of Colonialism by Vinodh kumar C.P, Revathi P.G et.al. Economic and political weekly, un.pub, 13, 1998.
16. Sreenivasan, M.A. (1930) Labor in India, Socioeconomic conditions of workers in Kolar Gold Mines. Vikas publishing house, Pvt. Ltd. New Delhi.
17. Indian Express. 13th July 2001.
18. Venkataswamy, M. (2006) Interview with Prof. G.H.Sawkar (2006) in Sawkar's house. Bangalore.

Chapter 8

Miners and their Problems

The living conditions of miners were miserable despite the fact that the mining industry was the largest in the erstwhile Mysore State. The workers were crammed into narrow huts with little or no sanitation, in contrast with the European bungalows. There was power supply to majority of hutments. The monsoon rains used to bring misery on the inhabitants. As these workers from impoverished villages had no alternative, they used to flock to the Kolar Gold Field area for employment. Their living problems were numerous, yet their lives were hovering around these areas.

Nearly 50% of the workers in the Kolar Gold Field mines were working on contract basis. There was no shortage of workers at any time. Nevertheless, in 1887 it was contemplated to bring Chinese laborers from Hong Kong. However, the fear that any such influx of Chinese laborers would adversely affect the employment opportunities of the local people, Europeans and other Asians, who would have been forced to migrate to South Africa (Gold Mines), prevented the arrival of Chinese (Janaki Nair, 1998).¹

In 1930 AD, the KGF was the largest industry in Mysore State. It was producing 1.8% of the world production of gold. The mining area had spread over 14.88 sq km. Nearly 50,000 people were living in KGF. A total of 18,514 workers were working in all the mines put together. Out of them 330 Europeans and 379 Anglo Indians were there. The rest were of Indian origin. Among these 17,805 Indian workers, 5032 workers had stayed outside in the surrounding villages. There were 80 villages in Bowringpet Taluk, and were coming under the jurisdiction of the Sanitary Board. The total population of all these villages was 87,682. Out of these people, nearly 67,000 people had depended on the mines. This figure does not include the police staff and other departmental officials and their families. The male to female ratio in KGF was on an average of 6:5. In Bowringpet Taluk, nearly 20,000 people were engaged in agriculture. Among them, the male to female ratio was equal.

Migration of Labor Population and its Mosaic

The KGF area situated in the SE corner of Karnataka is very close to Andhra Pradesh and Tamil Nadu. More than half of the mine workers had come from the drought hit districts of Tamil Nadu, such as North Arcot, South Arcot, Madras-Salem, Malabar-Cochin, etc. Nearly 1/5th of the people were from Nellore district of Andhra Pradesh and they were engaged in sanitation works. The total number of people speaking Kannada, Urdu and Malayalam was nearly 1/5th of the total population. Nearly, 4.4% had come from Mysore State and 3.3% from other areas. Nearly 58% were Tamil speaking, 19.5% Telugu speaking and 5.5 other language speaking people. Among all these people, 43.31% belonged to Adi-Dravida community, 35.7% were Hindus, 11.3% Indian Christians, 8.2% Muslims, 1.3% Buddhists and 3.2% belonged to other communities (Census, 1.1.1938).

The Adi-Dravidas who had come from Madras Province were the most backward. They were poorer than the Adi-Dravidas of Karnataka. They were doing any type of hard jobs which did not require any skills. They were prepared to do even dangerous jobs. Among them, maistries and contractors were also there. The Indian Christians and Hindus were more skilled and were joining only supervisory jobs on the surface of the mines. The number of Malayalis, Moplas, Muslims and Punjabis were less in number and among them were fitters, drivers and artisans. Nearly 2/3rd of the people of Mysore State were without any special skills (Sreenivasan, M.A, 1930)². In all it was a complex mosaic of caste, community, language and socio-economic mix of population that was engaged in the gold mining area of KGF.

In 1930, more than 50% of the mine workers inside the mines and nearly 25% of the workers on the surface were contract workers. Before 1930, they were working in the mines for 12 hours each, in two shifts. Later, 3 shifts with 8 hours work was introduced. This was not applicable to contract laborers. There was no fixed working hours. By working for more number of hours, they were actually getting exhausted and the work was not productive. Added to that, the number of accidents was also increasing. Anyway, their condition was much better than those who did not have any jobs and salaries. There is a Tamil proverb as: *kazhudai maihin dalu comapanile maikunur*; which means that if a donkey has to be reared, it should be reared in the Company.

Malayalis were more among carpenters and blasters. The Urdu speaking people had come from North India and they were working in the security forces. Some of them were drivers, fitters and mechanics. There were separate camps of Telugu, Malayalam and Punjabis. In Tamil camps, mostly untouchables were there.

When the mines were closed in 2001, the number of workers on rolls in KGF was 2760; in Chigaragunta 432; Old Bisanattam 107; Yepamana 164 and other Projects

The number of mine workers between 1891 to 2001

Year	No. of Workers	Year	No. of Workers	Year	No. of Workers
1891	9034	1980	11953	1991	10332
1900	24587	1981	12722	1992	8821
1902	34641	1982	12971	1993	8368
1930	18514	1983	12914	1994	7164
1973	13168	1984	12680	1995	6590
1974	12643	1985	12780	1996	6251
1975	12260	1986	12134	1997	5822
1976	11726	1987	11666	1998	4367
1977	11512	1988	11411	1999	4318
1978	11959	1989	10966	2000	4310
1979	11859	1990	10276	2001	3556

93. The total number of workers was 3556 and the total officers were 40 (Prasad, S.D., 2003)³.

It is learnt that in the first decade of the 19th Century, 450 Officers were there. Among them, there were European managers, underground agents and engineers. Most of these people belonged to the Carnival Province in Southwest England. Even among these people were cousins and nephews. A group from Italy was in the managers posts. Their number came down drastically after the I World War. There were Anglo Indians in the middle management levels. They were supervisors in technical and administrative jobs. There used to be mainly clerks, underground agents, sub-underground agents, foremen and worker groups. In addition to these, wiremen, timber men, fitter men were there. There were more than 30,000 local workers.

The population of KGF at the time of the First World War was 85,103. Later, in 1941, it reached 1,33,859. Such a steep increase was not seen in Bangalore or Mysore (Mysore Census, 1941)⁴. In 1901, in the erstwhile Mysore State 7.7% of the population was engaged in agriculture as laborers. At the same time in the erstwhile Madras Presidency 19.8% people were working as agricultural laborers (Census of India, 1901)⁵. That means in Mysore lesser number of people was engaged in hard jobs when compared to their counterparts in Madras. They were engaged in easy jobs (Mysore census, 1881)⁶. The mine workers were getting fixed income every month whereas the agricultural laborers were getting only a few days / few months job in a year. During the first decade of the 20th Century, they were getting 5 rupees per month in North Arcot and two rupees in Salem that too when the landlords were willing to pay. In mines they were getting 15 rupees (in 1899). In 1921, 37 rupees and in 1940 they were getting 39 rupees. This salary was too low when compared to the mill workers' payments in Bangalore. The workers over ground were paid rupees 14 in 1921.

During the period of 1921, in North Arcot district, there were 15.20% Adi-Dravidas. In 1931, nearly 40% of the workers came from this district. In 1941, their strength rose to 50.2%. They had migrated to KGF due to continuous famine and draught. Between 1891 and 1901, more people had migrated from North Arcot and Salem Districts. Most of them belonged to untouchable class and they were joining on contract system for hard jobs. For some skilled jobs people from Malabar and Madras were coming. During the period 1911 to 1951, more people came from Madras for building construction and other purposes in Bangalore. Subsequently, people from Anantapur, Coimbatore, Changanassery and Madras came to Bangalore. When a survey was conducted about Bangalore's Adi-Dravidas, Gertrude Woodruff wrote in his work: 'the migration that started in 1910 continued up to 1939 and during 1940, i.e., Second World War, entire families irrespective of male and female migrated to Bangalore' (Sreenivasan, M.A., 1930)².

Similar migration took place to KGF also. After 1940, the companies started encouraging the workers to stay with families. The main reason behind this was that the next generation would work for the company. It was not applicable to Punjabis and Mapilleys (Kerala). The untouchables who reached KGF were trying to cope up with the new type of work and to find a new social acceptance. The new philosophy that took birth in the land of gold amidst untouchables is Buddhism. This philosophy was also exerting influence on the mine workers and also on the surrounding villages. The caste factor which had entrapped the laborers got diffused amidst the new awakening among the workers so that the anti-social elements did not get any chance to disrupt and their ideology could not survive.

Daily Wages and Salary

In 1917, the difference between the salaries of officers and the workers was 22 times. In 1946, it came down to 13 times. Every working group had a maistry, deputy maistry, ordinary workers and assistants. The earliest workers were from nearby villages. They were brought by Kanganis (agents). The Kanganis initially were luring them with good salaries and with some advance money. With that their debts were cleared or released from bondage. In some villages, the outcast people were also brought. In some instances, money was paid to the masters to release the bonded laborers. But, there are no reliable records for these transactions. The company management was appointing workers through the contractors. All of them were initially trained inside the mines in drilling, driving, stooping, loading the trolleys, carpentry, etc. They were paid as per the agreement according to the work (excluding the contractor's commission). They were not getting any perquisites like housing, rations, leave, etc (Prasad, S.D., 2003).³



Fig.30. Workers gathered on Pay day



Fig.31. Workers waiting for the Payment

The total salary payment in the KGF for the month of January 1926 was Rs.72,65,862/-. Out of this, the salary of Indians was 50 lakhs i.e., 68% of the total. Out of this amount the salary of company workers was 56% and the contractor's salary was 44%. Europeans were paid Rs.18,87,964/, the local workers were paid Rs.4,25,684/, Indian Company workers were paid Rs.27,73,444/-, over ground contract workers were paid Rs.3,56,095/- and underground contract laborers got Rs.18,22,675/-.

Among the workers, the chief assistant underground agents, foremen, timber men, Pit-men, assistant engineer, carpenter, smiths, engine drivers, chemists, etc., were predominantly made up of Europeans. The maistris, coolies, hand jumpers,

blasters, timber maistry / coolie, Landers, plate men, bellmen were mostly Indians. In some jobs Europeans and also Indians were there (Sreenivasan, M.A., 1930)².

The average salary of the Europeans was £ 43.80, maximum being £ 92.50 and the minimum being £ 18.27. The average salary of the Indians was Rs.29.90, maximum being Rs.92.90, minimum being Rs.18.27. From the above statistics, it can be seen that 36% workers were paid more than 10 annas per day. 40% of the workers were getting 8 annas and less per day. More than 50% of the contract workers were getting more than 12 annas per day.

The average salary of the Indian Company workers who were working in all the shifts was Rs.23/- whereas the Indian contract workers were getting an average of Rs.15/- although they were paid an average of Rs.25/-. Company workers were taking an average of Rs.22/-. The reason was absenteeism. The company workers were getting bonus because of more number of production days. The contract workers were absent more because of hard work. They were not getting any bonus. Besides, several types of deductions were done from the salary. The company had distributed 24,000 ration cards. In 1940s, through the ration cards, food grains, cloths, kerosene oil worth Rs.3 lakhs was distributed. During those days, 5 to 6 seers of rice were available. If any accidents occurred due to the mistake of the workers the cost / penalty was recovered from the salary of the workers by the company. The Tamil workers were kidding themselves as '*If you go below you are a corpse; if you come up you will get money*'.

In 1930s, when the company or the contract workers fell sick, they were paid 4 annas as sickness allowance if their salary was 4 annas and less. 6 annas were paid for those with salary of 7 annas. Similarly, 8-6, 9-6, 10-7, 11-8, 12-9, 13-10, 14-10, 15-11 and 1 Rupee for 12 annas sickness allowance was paid. In 2001, when the Mines were closed, the average monthly salary of a mine workers with 20 years experience was Rs.4,200/- whereas that of a similarly 20 years experienced officer was getting Rs.12, 000/-.

Year	No. of Workers*	Total Salary**	Average Salary***
1939	25222	8060362	319.56
1940	26079	8234533	315.75
1941	25506	9077770	355.91
1942	23956	9668565	403.60
1943	21803	10018331	459.49
1944	18920	9171204	484.74
1945	17237	9339674	541.84
1946	18806	10594297	563.35
1947	20556	17022905	828.00

1. One Anna was equal to 6 Paisa. 16 Annas per Rupee.

* Excepting white and Indian Officers; ** Bonus and other allowances;

*** Average salary of a worker

Soaring Prices

- 12 Dammadi = 1 Anna (6 Paisa)
- 3 Dammadi = $\frac{1}{4}$ Anna
- 16 Anna = 1 Rupee
- 1 Palam (35 grams)
- 8 Palam = 1 Seer (1.93 kg)
- 5 Seers = 1 Veesai (4.65 kg)
- 8 Veesai = 1 Mound (37.32 kg)
- 20 Mounds = 1 Form

The above types of measurement were there in KGF area in the 1930s. In small wooden shops, foreign cigarettes such as passing show, players, navy cut, gold flake, charminar, etc., were sold. 4 cigarettes were costing from 2 dammadi to 4 annas.

During this period, crackers came for the first time from China. Crackers worth one rupee were enough for the entire family. Crackers were manufactured for the first time after independence in Sivakasi, Tamilnadu. Beautiful porcelain ware and woolen clothes were coming from China. Some families who had come from China had settled in Andersonpet. After the Second World War, when the Britishers imposed Emergency for the first time, adulteration of certain goods had started in KGF. The black marketers started hoarding the goods and were selling them for double prices during night times. The fair trade in KGF had turned towards unfair practices (Seetharaman, K.S., 1989)⁷.

The Workers Absenteeism, Gratuity and Promotion

In 1930s, a part of the workforce was working under the company and another part was under the contractors. The contractors were getting the work done under agreements. 10,514 workers were under the company and 8,000 workers were working under the contractors. These workers were mostly engaged for drilling work in the mines, blasting work, scooping up the rock pieces and soil, carpentry, and over ground jobs such as dumping the cyanide tailings, etc.

Out of these 18,514 workers, 9,767 workers were working inside the mines and 8,747 workers were working over the ground. Among them, 1,275 women and 527 children, above 12 years, were working. According to the Mysore Mining Regulations, Rule No.32 children under 12 were not allowed to work inside the mines under any circumstances. The women were engaged in doing such jobs as sweeping, making water beds on the mine tailings to prevent it from getting hurled into air, laying road metal, picking up quartz fragments, separating gold from the woolen blankets, etc.,

children were usually working from 7 am to 5 pm. Between 12 noon and 1 pm, there was a break of one hour for lunch and rest. There were three shifts of 8 hours each inside the mines. The first shift was from 7 am to 3 pm, second shift from 3 pm to 11 pm and the third shift from 11 pm to 7 am next morning.

The cage operators, security guards and others were reaching 30 minutes before and were preparing for the work. Sundays were rest days-once in a week. If they worked more, over time allowance was paid. The workers with contractors were not getting overtime allowance. Even then they had to work more because of the absence of some people and the work had to be finished on time. Some workers used to work at a stretch for two days and two nights and were coming out on the third day. Then they would be on complete rest for a day. The contractors were providing them with meals, betel nuts, leaves, tobacco, beedis, etc. As it was a contract job, in their hurry to finish the job, they were getting involved in accidents.

About 10.88% of mines workers and 36.35% of the contract workers used to abstain from duty. Some workers were on duty in attendance registers of two or three mines simultaneously as the registers were not checked regularly. If the attendance of the company workers is 26 days, they were getting two rupees as bonus and if it was more than 27 days, they were getting 4 rupees as bonus. This facility was not available to contract workers. This was also a reason for their absence. Besides, they had to do very hard jobs. The maistris were always after them. Other reasons for absenteeism were ill health and cultivation work during monsoon.

Those who worked for a longer period and retired from service were paid 2 to 3 rupees per year of service as gratuity in 1930s. One who served for 25 years was getting 75/- rupees as gratuity. But, the contract workers were not getting anything. The officers were getting more gratuities based on their salaries. When a worker died of old age or silicosis, his family members did not have even a single rupee to bury him. That time, his sons or his son-in-laws had to help the family. The workers were demanding for many years to start a workers fund and the companies were only giving assurances.

When the British officers left India in 1962, their place was occupied by the Indian officers. As soon as they got their chairs and bungalows, they adopted the mannerisms and styles of white people. They adopted a new style of the erstwhile colonial masters overnight and in certain cases they exceeded them even in attitude, status, respect, arrogance and wealth. This revelation was a great disappointment to the KGF mine workers. The life of the workers remained the same, living as usual in the tenements (Ramu, 2001).⁸

The economics of the mines reflected that of the KGF town and were mutually dependent. In a survey conducted in 1971, the caste mixture was found to comprise 281 Hindus, among whom 18.5% were Brahmins, who were in the middle and upper classes and their economic representation was 90%, the Adi-Dravida untouchables

were nearly 47.7% and their representation in the middle and upper classes was 14.2%. In the upper class their representation was only 1%. Only about 7.7% of Brahmins were in the lower bracket whereas 85.87% of the Adi-Dravids were in that category.

Salary Income and Household Expenses

The families of the workers were depending solely on the income of the workers. According to the information collected by Sreenivsan in 1930 from 50 families, the extra income earned by family members, was spent on expenses on food, drinks, cloths, debt repayment, etc. His facts were based on documents he had collected by meeting the families directly (Sreenivasan, M.A., 1930)².

All these families were living in the camps / lanes. It is not that easy to get a picture of the insides of the families. It was also difficult to get a picture of their financial transactions. They were stating that they were using Kusubala Akki (rice) extensively. There was no relation between their incomes and expenditures. After enquiring with the relatives and friends of the workers, these data were collected. Usually the family size of a poor worker is always big. The average adult size of all the 50 families was 3.94. The average income of company worker and contract worker was 22 rupees and 15 rupees respectively. The average expense of a family member per month was 6 rupees and 12 annas. At this rate, the small children were also spending the same amount. The reason being, separate calculation was not made for children.

It was based on 100 points for a 16 year old young boy and 83 points for a young girl of the same age. A 4 year old boy would take food along with parents whereas a 1 year old baby would suckle from the mother. It was given 50 points. According to this measure the average adult size of a family was 4.56. Their average income was 7 rupees. Expenditure was 8 rupees and 11 annas. The total income of these families would be from 14.8 rupees to 69 rupees. Based on monthly income, the 50 families appeared to fall into 5 groups. 8 families were under 20 rupees income, 17 families under 20 to 30 rupees, 13 families under 30 to 40 rupees, 10 families between 40 to 50 rupees and above 50 rupees income there were only 2 families. The details of the expenditure on food, etc., of these families are as follows. They were spending an average of 53.6% of their income on food, on Kerosene and lighting 5.5%, rent 2%. Clothing 6.1%, 4.4% on drinks, interest on loans was 15%, 1.9% on rail tickets and 3.4% on education, dhobi, haircut, etc.

Those who were receiving less than 40 rupees per month were unable to escape from the fresh loans. As the loans were going forward along with the accrued interest after some years, the families were caught in the vicious circle of debts. It was not possible fully to collect all the information from these illiterate families. They were

not in a condition to purchase vegetables, cereals, mutton, etc., for the family every evening. The families were not able to purchase new clothes and they had to pull on with the old one year after year.

The workers had to do some additional jobs besides mine work. The women had to do odd jobs. As the debts and interest, were increasing steadily, it was very difficult to pay the interest at least and it appeared to be a lifelong feature. The plight of those with still lower income was miserable. If they worked more, they had to eat more food. Added to that was their addiction to liquor. The rich and the Marwaris who financed them were deploying new methods to recover the money. A worker spending an average of Rs.4, 13 annas and 7 paise per month or per day an average of 2 annas and 7 paise was spent. It was difficult to gauge as to how much money was required for a family. Under these circumstances, any one would be happy if he can fill his belly every day with a square meal.

In the Malayali and Mopla hotels in the campus, one was getting food for Rs.1.10 to 2.00 per week, which amounted to 3.75 to 4.4 annas per day. At the same time, the prisoners in the Central Jail of Bangalore were getting food worth Rs. 5.5 per month, which is actually 2 annas, 10 paise per day. The inpatients in the hospitals were getting food worth 0.5 rupees, where as a miner was consuming food worth 2 annas 7 paise. It is much less than that of the prisoners. Even if a mine worker works hard throughout the month and earns Rs.30/-, his food intake was less than that of prisoners. Nearly 1300 women were working in the Mines. It was helping their families. Similarly, 527 boys were working over ground. Among them were the destitute and orphans of the accidents victims.

Under the management of Buddha Vihar in the mine town, many young women were working on the hand loom. A basket weaving work was also going on in this centre. Bamboo was brought from the forests of Tamilnadu. The companies had purchased bamboo worth Rs.18,000/- (for construction of houses), mats worth Rs.13,000/-, hats worth Rs.5000/- and baskets worth Rs.5,500/-, totaling Rs.30,760/-.

Vicious Circle of Debts

In 1946, when R. Deshpande examined the financial conditions of the mine workers, he observed that they were under the debts of 1 to 4 months salaries. Most of the debtors were the workers with least salaries, with less than Rs.35/- per month. According to Rule 13 of Mysore Money Lenders Act, 1939, the licensed money lenders in KGF had to take less than 9% interest per month. According to the Criminal Procedure Code Act, 1938 (Amended), those workers who were paying interest regularly were exempted from punishment.

A limit of Rs.50/- was fixed to be repaid through the courts. That means, if the

money lenders filed cases in the courts, the salary cuts should not be more than Rs.50/-. By this, the person who was raising loans beyond some limits, were restricted from doing so. But, in such cases which were filed before 1938, more deductions had to be done. To stop this, another Amendment Act was introduced in 1941 (Sreenivasan, M.A., 1930)².

The traders filed a suit in 1939 to declare KGF as free from the Act of 1939. Their argument was, 'The workers are not from Mysore area. They always thought of running away without paying the principal and interest. Because of the Act of 1939, 60 lakhs out of 80 lakhs was still pending'. The workers complained, 'There is no use from the 1939 Act to the workers. The traders are still fleecing more and more interest on the principal amounts'. This was confirmed by Deshpande report. A lady by name Muniyamma of Marikuppam had complained that a money lender by name Hiralal of Andersonpet had not returned her necklace even after paying back the principal and interest amounts. After a thorough search, the police unearthed the necklace and the District Court punished Hiralal in 1938 to undergo one month jail term (Deshpande)⁹.

Even though the price of the rice sold by the company was costing more than the market price, the workers were still purchasing because it was given on credit. On 7th April 1943, the company announced that the rice would be sold only on cash. Nearly 800 people of Oorgaum Mines protested against this. At that time, the workers of the Champion Mines did not attend to the work due to non-supply of grains. The kerosene oil and coal distributed through the contractors to the workers were sold back to the maistries (Janaki Nair, 1998)¹. The women were not getting any jobs. When they thought of introducing looms or any other useful work in 1920 for women they wondered as to where to keep such things in their huts measuring 8 feet by 8 feet (Sreenivasan, M.A., 1930)².

Low salaries, more children, big families, were the actual reason for the workers to resort to small scale thefts of gold in the mines. The security staff knew about it but ignored it (Sreenivasan, M.A., 1930)². The companies declared in 1940 that the thefts were completely controlled, but at the same time the court punished Ganeshlal, a copper and brass merchant with a fine of Rs.400/- and one month jail term. The police had recovered mine articles worth thousands of rupees (The Hindu, 1946)¹¹. The Marwaris were going to the houses of those who were not repaying the loans and used to bang them with the choicest of abuses, 'Shameless strangers, beef eaters, you are showing true colors'. They used to collect higher rates of interest.

But, a very big protest rally in 1930 had made the Marwaris to keep quiet. The Marwaris were rushing to the courts against the contractors and workers and were getting their dues in the form of salary deductions through the courts. In 1928-29 and 1929-30, 153 and 189 cases in courts were for attachment of salaries for payment to the Marwaris (Sreenivasan, M.A., 1930)². In the coming year, the court attached

salaries in case of 1,320 contractors. It became very difficult for the workers to live after deducting Rs.100 to Rs.300 from the workers' salaries. Or else, the workers would have taken decades to repay such high amounts. In addition to the salaries, the courts were attaching the gratuity amounts also. Most of the workers were not getting salaries properly. As the names of the debtors were not properly written, some time deductions were made from wrong persons.

The petitioners and witnesses were brought to the courts. The company took a decision in 1920 to dismiss those workers who were debtors and whose salaries were attached to the courts. They had thought the workers would never leave the company if they took loans. Instead, the workers did not leave KGF nor asked for forgiveness as thought by the rich Marwaris and the company people. If the Govt. implemented the moneylenders Act, the principal amount had to be foregone and hence understanding this, the Marwaris kept quiet for some time.

Some clever maistries and widows in KGF were lending money at the rate of 2 annas per rupee. All of them were gathering in front of the office on salary days more than the workers. Some Rauts and Pathans were charging 1 paisa per rupee per day and this was amounting to a huge sum at the end of the month. There were 130 Marwari shops in 1930 in KGF. Somehow they were getting hold of workers and induce them into taking loans. Sometimes they were lending without any securities. The Marwaris were taking the thumb impressions of debtors and also of their friends.

The Marwaris had employed some workers as their agents to bring the workers for loans and also to collect interest. These agents were informing the Marwaris about the movements of the workers. The agents were charged slightly lesser interest for doing this job. If the debtor worker had runaway or had died, these agents were caught in a fix. Some of the workers were mortgaging gold, silver, ornaments, plates, vessels, bamboo hats, carbide lamps, shoes, umbrellas, old clothes, etc., for getting loans. The drunkards used to mortgage even the mangalasutra of their wives. If the wives succeeded to retrieve them, these people would again pledge them for drinking.

The medals given to ace maistries and blasters by the Chief Inspector General of Mines were also pledged to Marwaris for getting loans. If the workers did not salvage them, the marwaris were clearing them off for lesser rates.

Housing and Sanitation

Nearly 86% of the population of Bangarpet Taluk was living in KGF Mines colonies, and in nearby Robertsonpet and other villages. The company had appointed sanitary inspectors, overseers, maistries, sweepers and bullock carts to carry garbage. To meet this, the company was spending 1 lakh rupees per annum. They were spending 8 rupees per worker. In addition to this preventive measures such as medicat sprinkling,

lime coatings, repair of carts, etc., were also costing quite a lot (Sreenivasan, M.A., 1930)².

On an average 50,000 rats were killed by poisoning or by catching, by the Sanitary Inspectors. The garbage collected from the camps was transported to far off places. That was either burnt down or was sold as manure. Anyone falling sick would be shifted immediately to the hospital.



Fig.32. Huts raised by first generation of workers for themselves.



Fig.33. First huts provided by mining companies

The details of the expenditure are as follows:

	A	B	C	D	E	F	G	H	I
Europeans	327	614	305	61	141	26250	4.06	80.40	42.11
Anglo-Indians	287	1498	261	12	81	16919	16.21	58.8.0	11.50
Indians	12866	46054	11492	364	538	103246	84.00	398.00	2.40
Total	13482	48166	12058	441	760	146415	10427	537.20	56.01

A. Number of miners; B. Number of people in camps; C. Bungalows, quarters and huts; D. Huts without occupants; E. Number of sanitary workers; F. Total salary paid by companies; G. Sweepers / workers; H. Expenditure per worker; I. Expenditure on others in the Mines area (Sreenivasan, M.A, 1930)²

The Britishers / Europeans had bungalows and quarters. The workers had 11,492 huts. Out of these huts nearly 1000 were constructed with brick walls and covered by zinc sheets or tiles on the top. Indian clerks and supervisors were living in these quarters. The rest 10,492 huts were built with bamboo sticks and covered by zinc sheets. The room is of 9 feet by 9 feet size. All activities such as cooking, dining, sleeping, reading, etc., had to be done only in that room. They were pasting mud on the bamboo sticks to prevent wind from entering through the gaps. The floor was coated with cow dung.

The main spot of the room is the oven. Always one or two earthen pots were placed on the oven. A bamboo screen was placed in the centre of the room to prevent the wind and to cut off the view of street walkers. A wooden plank was tied above the oven, in which kitchen items were placed. On the other side, ropes were tied from wall to wall on which clothes were placed. That itself was the wardrobe. Bamboo hats and acetylene lamps were hanging here and there. 1 or 2 photos were hung on the bamboo screen. Photos in which the worker was seen with British officers were also seen right opposite to the door.

Behind the door, they placed a small granite slab around which a small canal was made for the water to flow. All the members of the family used to take bath here and also cloths were washed. A towel or a bed sheet was hung down while taking bath. They were tying the zinc sheets on the roof to a boulder with a wire or were placing some boulders on the zinc sheets to prevent them from getting blown away. There was no privacy for newly married couples. The companies had thought of accommodation for only one person. For several years, they did not plan for a family accommodation for the workers. The workers used to put-up small hutments besides the huts. They used to keep their married children in those hutments. Added to that, the relatives used to come and stay. Sometimes, they used to rent out the main hut and on some occasions some people used to rent out for a short while when they went to their villages on leave.

During summers the tin roofed huts were giving the feel of a furnace and in monsoon they were giving the feel of standing under a tree as the huts were leaking everywhere. When strong winds blew over the huts, the sheets were flying in the air and that's why they were calling them as 'Pushpak Vimana huts'. When they were built they were very strong but with passing time, the structures were becoming weak and the bamboo sticks were eaten up by mites leading to tiny holes. Companies used to arrange for replacement of old ones. Sometimes the dwellers themselves were destroying them for requesting repairs. Vacant huts were misused by love makers during night times.

During monsoon times when the firewood was not properly burning, the womenfolk used to placate one or two bamboo sticks from the neighboring huts. They used to plead with the sanitary inspectors when they came for repairs, to attend to their huts. While constructing the huts, 9 feet by 9 feet hut was costing 69 rupees, 12 feet by 9 feet hut was costing 125 rupees and 10 feet by 9 feet hut was costing 100 rupees. Annually, to repair them, it was costing 8, 9.60 and 10.90 rupees respectively.

There was no electricity supply to these huts. Only the Henry shaft lane huts had electric connections. In other lines, only a few street lights were there, here & there. As the dusk settled the entire area was engulfed by darkness. As the menace of lovers was seen everywhere, the residents started pressurizing for street lights everywhere. As there were no trees, the entire camp was tattering under strong winds. The Oorgaum Camp, located very close to one of the mine tailing, was smeared by cyanide mixed sand blown winds. Almost everything, such as utensils, clothes, ears, eyes, noses, etc., was filled with such dusty particles. They had to drink or eat by covering the mouth under a piece of cloth. There were 11 colonies outside the Mines area. There were 3 colonies in the area west of Robertsonpet, 4 near Oorgaum and Marikuppam, 1 each at Balliganahalli, Krishnagiri and Pandaram lane. All these colonies were



Fig.34. Mining Colony near Oorgaum

under the jurisdiction of the Sanitary Board. The companies were not taking any responsibilities. These were slightly better than the company hutments.

References

1. Janki Nair, S. (1998) Miners and Mill hands-work, culture and politics in princely Mysore. & File no.445 of 1903, SIno.1-6. Mysore residency files. National Achieves of India.
2. Sreenivasan, M.A. (1930) Labor in India: Socioeconomic conditions of workers in Kolar Gold Mines, Vikas publishing house, Pvt. Ltd. P.10.
3. Prasad, S.D. (2003) Mine closure planning - A case study of Kolar Gold Fields, p.12.
4. Mysore Census (1941) Vol.xxv, report, table-3.
5. Census of India (1901) Mysore, vol. xxiv, part 1, p.729.
6. Report of the Mysore census (1881) p.33.
7. Seetharaman, K.S (1989) Kolar Thangvail Varalaru, p.69.
8. Ramu, (2011) Economics and Political weekly, p.10.
9. Deshpande. Report on the Gold Mining Industry, p.21.
10. Duriairasan. (1951) Tangam Summa Varuma? Thangavail thozhialar githam. Oorgaum. p.4.
11. The Hindu, 11 July 1946.
12. Vazhinadi Chindu, p.10.

Chapter 9

Laborer's Hard Work and their Health

The following description gives a picture of the state of the health of the workers. During the period, 1925-29, the number of children born in KGF for a population of 1000 was 32.75 and the number of deceased children was 19.77. The same ratio in Bangalore was 39.40 and 31.40, in Robertsonpet it was 38.40 and 23.10, in Mysore it was 29.30 and 30, whereas in Bombay it was 23.59 and 20.56. In Jharia Coal Fields, it was 35.47 and 18.28. That means, the number of deaths in city areas was more than that in mining areas (Sreenivasan, M.A., 1930)¹.

In 1912, plague appeared in KGF and many people lost their lives. Many people went back to their villages. Later on, plague did not appear here. The BGML Hospital and the Sanitary Board succeeded in controlling this disease. The Sanitary Board officials were taking care not to allow the spreading of any diseases. They were not sparing even a single rat in the mines area. They had killed 68347 rats in 1924 and 42190 rats in 1928. They were checking the people daily and in case of any doubt, they were shifting them to the hospital.

Everything that was sold in the shops was to be permitted by the officers. Before cutting the sheep, goat and cattle, the officials had to examine them and stamp them. The British and Anglo Indians were getting the superior quality milk from Oorgaum Dairy. But, the workers were unable to purchase that milk and they were purchasing the watery milk from the villages.

The nurses from the Sanitary Board were visiting the pregnant women and children in the camps and were dispensing medicines to them. There were small time clinics in the camps. If the people were not cured in these clinics, they were referred to maternity and Govt. hospitals. In 1928, the expenditure on children and women was 3378 rupees. Out of this amount, the company paid 2500 rupees and the rest was paid by Red cross (Sanitary Board, 1969)². The 1512 square mile area around the 25 mining areas was protected as disease free area. It was learnt that this area was protected much more than the cities of Bangalore and Mysore (Sanitary Board Report).³

Alcoholism Among Workers

During those days, beer was supplied from Mysore, whereas other fine drinks were imported from England. The arrack distilled from coconut and palm trees were coming from Tamil Nadu. The doctors were prescribing the silicosis patients to drink arrack. Some of the people who were drinking toddy got cured to some extent, or so that people believed.

In 1910, most of the liquor sales in Mysore State were in KGF. In 1909-10, an average alcoholic consuming in the state was 4.67 darams (1 daram = 1 sip). The average consumption in Bangalore was 52.3 darams, in Mysore 25.8 darams and in KGF a record of 78.6 darams. In KGF, during those days, there were 21 arrack and few toddy shops. In that year, in KGF area, an average of 26.4 seers (seer = one container) were consumed, whereas in Bangalore was 8.8 seers and 7.2 seers in Mysore per month. In 1928-29, there were only 6 arrack and 12 toddy shops in KGF. In Robertsonpet a shop selling local beer and a special foreign drink was also there. Only company officers and rich people were going there. Besides, one ganja and one opium shop were also in the town.

It was a disgusting scene to watch in the evenings of salary days when the workers used to drink to the brim and resort to gimmicks. As the day disappeared, the dazzling lights used to spread the bright lights. In this light, one could see mine workers who were coming straight from the mines with lot of brown mud sticking to their uniforms, faces and hands. They were looking like strange creatures. It was a common scene to watch these fully drunken people standing and sitting wherever possible, spitting and smoking beedies and ganja, shouting and fighting.

Some clever women were renting out empty bottles at 3 paisa per bottle to those men who did not bring their own bottles. Some more men and women were selling the fried snacks under dim light. The room where ganja and opium were puffed was a special one. It was absolutely silent without any noise. The windows and the doors were closed. But, one could make out from a distance that something was going on inside that bamboo walled thatch room. When the door was opened, all of them were looking like sitting on fire spitting volcanoes. The oil lamps here and there were looking like red hot lava ejected by the volcanoes like fire balls.

An elderly person looking like a sanyasi was sitting in a corner and was offering small rolled pieces of ganja to those gathered there. They were keeping them on lamps lighting for a while and later they were puffing out smoke all round in coils one after the other. They were enjoying in the ecstasy of pleasure after getting the maximum kick in the brains, wobbling, snoring, red eyed without movements of eye lid grumbling, in the peak of intoxication.

When the worker returned from the hellish underground mines back to hut, he was looking like another hell. He was not able to get any type of happiness or rest in

his hut. The children in the house and in the neighborhood were always disturbing. Overall it was a dirty environment. The worker needed slight relaxation to forget all this. Probably, that was one of the main reasons he had become addicted to arrack, toddy, ganja and opium. While in a state of intoxication the drunken workers would narrate jokes *'Is the poverty due to drinking? Or drinking due to poverty? Whether the dog is running because of the tin tied to 'his' tail? Or is it tail running behind the dog?'* and laugh.

To avoid drinking habits, they had to create a good atmosphere around the camps. They had to maintain cleanliness around the hutments. They should have opened more tea shops for supplying hot tea. They should be shown some quality films in the open air theater, also shown educational and national level documentaries. Prayer halls and temples should be there for passing time. Some were forcing the children to engage themselves in sports.

In 1923, the Adi-Dravida Sangham requested the officers to shift the arrack and toddy shops to 5 km away from the mining colonies. But, the administrative people had not responded. The Adi-Dravida Sabha protested against the drinking as a result of which drinking had come down for a few days and the womenfolk had a sigh of relief. The drunkards were going 13 km to Bangarpet in late evenings for drinking and returning back in the nights.

A worker, after drinking illicit liquor in a nearby village, was walking in the forest, on the way back to his home. A constable caught hold of him and produced him before the chief magistrate in Robertsonpet. The police constable had a black mole on his nose. Everyone was calling him 'Macche Mookan' (a man with black mole on his nose). The White Lord asked him, 'Did you drink?' Then the accused said, 'Honorable justice, respected advocates and fellow citizens... As usual today also I went to Holagamadi village to drink. I was returning happily. 'Macche Mookan' saw me from a distance, I was terribly afraid, I trembled... I feared ... started running. Ran... ran... fell in ravines ... Got up and ran again. Did he leave me? He came after me. I am no less than him. I ran like a deer, turned back? He was very close to me. What to do? Started running faster without gasping. Did he leave me? No, He caught me. At last I was caught like a tender deer by the claws of tiger. He beat me as much as he could, he kicked as much as he could, beat all over, and he pushed me into the police van. Here I stand as a drunken accused. Yes, I did drink. Whatever is the punishment, I accept it my Lord'. The culprit had narrated his admission interestingly thus. All those in the court were laughing by hearing his words. The justice not knowing Tamil asked, 'What he says?' One advocate told him, 'dramatically, he has admitted to his fault, my Lord. He is a famous dramatist'. The Justice ordered him to pay one rupee as fine. He paid the fine and happily walked again towards Holagamadi for a drink (Seetharaman, K.S., 1989)⁴.

As arrack was not available in the mining area, they were brewing rice with

some herbs during night and were drinking it for intoxication. By adding salt, tamarind and water to varnish, it was turning to spirit. They were enjoying it. When some people drank methylated spirit, fumes were coming out of their mouths. At the time, if anybody lit a beedi for smoking, the fire used to engulf the inside of his mouth. Some people were collecting butts of 'Passing Show' cigarettes to soak them in water and then add sugar to it. They were drinking that water. After doing all this research, the drunkards lastly learnt the process of making illicit liquor out of a mixture of jaggery, rotten plantain, potatoes, grapes, sawdust, match sticks, potassium salts, battery cells, ammonia and animal skulls. This mixture was buried in a mud pot inside the soil for 13 days and then it was distilled.

Dr. B.R. Ambedkar had visited KGF in 1954 with lot of enthusiasm to meet the labor leaders. The workers who surrounded him behaved in an uncivilized way. They did not listen to his words. They took him in a procession. They danced under intoxication, firing crackers and making merry. Unable to bear it, he angrily returned to Bombay. Dr. Ambedkar, later founded the Republican Party in Bombay, some of the labor leaders had gone to him to seek his advice. That time, he got wild by seeing them and said, 'You black donkeys get out of here, you betrayed my people' and sent them out of his room (Seetharaman, K.S., 1989)⁴.

Silicosis / Pneumoconiosis

The laborers of KGF Mines were exposed to occupational disease like silicosis. No medical assistance was available in KGF till 1940, for these workers. At that time, a civil officer of Mysore Govt. had identified it as silicosis but Dr. Rolph Nehi, Chief Medical officer of the Mines said, 'it is not silicosis'. The civil officer retorted, 'What you are telling is a lie. Haven't you seen how these people are vomiting blood in hospitals, railway stations and in huts'? Then, the doctor replied, 'If compensation is paid for this disease, the company has to be closed'. The civil officer shouted, 'Do that First'.

If this matter was known to the workers, it would have become a big problem for the company and on the other hand, if the report was not made public, then also they would get a doubt. To avoid this, the Executive Officer of the Mines, Kenneth B. Taylor consulted the Dewan of Mysore and expressed his inclination to publish only the first part of the report. Later, a different version of the report was published in which there was no mention of silicosis (Seetharaman, K.S., 1989)⁴. There were 1824 silicosis cases in between 1930 and 1940. When this disease had reached an advanced stage only, the doctors were giving medical certificates. When there was contradiction between doctors and patients, such complaints were referred to Mysore Medical Bureau as per the Mysore Silicosis Act, Sec-32.

Even after 50 years of gold Mines, it is surprising that no research was c

onducted to find out the type of diseases that the workers were suffering. Before 1934, research work was conducted in the Rand Mines of South Africa about the health problems of the workers. The environment of both these mines is almost similar. But, the dust generated in KGF rocks had more effect on the workers than in Rand Mines.

The Rand Mines started in 1886, and drilling was going on there since 1892 AD. In the beginning, a disease called 'minerphthese' had appeared in the workers. By 1901 AD, 73 workers out of 1000 lost their lives due to this disease. By 1911 AD, about 25% of the people were suffering due to this disease. It was appearing in new workers with in 2 years of joining service. That 'minersphthese' was later called silicosis.

This disease was appearing in those working in tunnels, but it was more rampant in those drilling rocks. After detecting this disease in Rand Mines, it was followed up in other mines of the world. It was believed in KGF that gold occurs in auriferous quartz and hence silicosis does not come because of quartz. In 1933, Prof. W.R. Jones did research on silicosis problems in KGF and called it 'Pre-silica Thalassey'. In Rand Mines sericite or secondary white mica was present and in KGF it was not there. 'That's why silicosis would not appear in KGF', was the opinion of Prof. Jones.

But, other scientists did not agree to his findings. They were of the opinion that real facts were not considered for research. By 1915, an X-ray machine was established in KGF hospital. But, it could not identify that part of the lungs with which the workers were suffering. But, in 1934, a special X-ray film was used to screen the lungs. Even then the disease could not be identified precisely. The minute particles inside the lungs of the workers could not be identified by X-ray screening. Later, this was identified as Pneumoconiosis. The dust particles enter from air and get accumulated in the lungs. Then, gradually, fibrous tissue grows around these particles. It creates many problems for the lungs. In 1907 and 1912, the chest radiograph X-ray was introduced in Australia and South Africa respectively. These were very modern instruments and continued up to 1940. The Mysore Govt. setup a medical committee in 1934 with a directive to find out whether silicosis prevails or not. The same year, a modern X-ray machine was installed in KGF hospital. This especially had chest radiograph.

The medical committee conducted research and reported that the workers had silicosis. One difference that was noticed between the workers of India and South Africa was that the disease in KGF workers manifests slowly over the years whereas it appears very quickly in South African workers. Research was done on silicosis, skin disease and other diseases and conclusions. Through some other research also, it was concluded that there was pneumoconiosis. Based on the facilities given to South African workers, similar facilities were also extended to KGF workers based on the intensity of the disease.

Dr. Anthony did research between 1940 and 1946 on 7653 patients and collected 60 lung samples. He presented his findings at a seminar in 1947 in London. It was on silicosis/pneumoconiosis related with dust. After discussions, it was concluded that the observations in Rand and KGF Mines are one and the same.

In 1947, Prof. Gauf had conducted special research on pneumoconiosis in South Wales. He had subjected the lungs for special tests. In 1950, Prof. Gauf compared the lung samples of KGF with those of coal mine workers. In 1958 through the efforts of the International Labor Organizations (ILO) the characteristics of the disease were defined and accordingly the facilities were fixed. Later, in 1968 and 1970-71, some more facilities were extended as per the Geneva accord. But, during the 121 years of mining period, not even a single case of typical coal related silicosis was detected in KGF.

In accordance with the Mysore Govt.'s silicosis Act, 330 lungs related research were conducted between 1939 and 1980 on workers who served between 6 to 45 years in mines. They were not able to subject the lungs of the dead persons. Such lungs were examined only when the relatives of the deceased approached for compensation or agreed for using the lungs for medical examination. By such post mortem determinations as certified by the doctors, for silicosis cases, compensation was paid. In most of the cases, the doctors were stating in general that the workers died due to long time work in mines.

In 1947, Dr. Chaplin, after 6 years of research work in which he subjected 60 lungs and 7653 workers to radiology examinations, concluded that lungs were affected due to silicosis, for the first time. He demonstrated characteristics such as swelling of blood vessels, change of color, clotting of blood inside the blood veins and rough surface development due to silica dust, etc. The same samples were re-examined between 1973 and 1978 by Prof. Gauf of Welsh University, who concluded that similar features were found in coal mine workers also. He had certified that 159 out of 330 lungs had silicosis. Out of them, 94 cases were simple, 35 complexes and 30 cases had tuberculosis. In 171 cases, it was stated that there was no such disease. Silicosis was detected at 4 stages. Based on this, if any worker had reached stage 3 or stage 4, he was removed from services saying that he was unfit for work. But, the workers were pleading with the doctors that they did not have any disease, because they have to remain in service somehow for the sake of livelihood.

The dust particles entering the lungs were gradually penetrating into the tissues. Also, the blood veins were developing extra growths. The silicosis problem in KGF was not that severe when compared to the mines in other countries. The main reason for this was the presence of only 13% silica in the dust in KGF Mines (Shenoi, B.V. 1980)⁵.

Epidemic Diseases

Now and then endemic diseases were appearing in the colonies in addition to the ever nagging accidents. In 1898, 714 workers died of plague and nearly 5000 workers fled the place. The colonies started suffering for months. As the dead bodies were deserted here and there by the relatives, the disease started spreading faster. But, no sanitary workers died due to this disease. That's why it is stated in report that it was not an epidemic (Gowda, A.M.S. and Shenoi, B.V., 1980)⁶.

The management argued that it was not due to un-hygienic condition around the colonies. In spite of any amount of care, cholera and chicken pox were appearing in the colonies. The bamboo huts where the workers lived were not in a good condition for living. The sanitary board workers who were coming for inspection were looking like the agents of the Lord of death Yamaraya. In the process of catching rats, they were digging everywhere inside the huts also. Those who did not cooperate and came in their way were black listed into the list of endemic affected huts and sometimes they destroyed the huts even. If they had grown a few vegetable plants in the backyard, they were removing them saying that the mosquitoes were breeding there.

The workers were not able to do anything as the Sanitary Board was placed under Mysore Mines Regulations. When any endemic disease appeared, immediately the report had to be given to the Sanitary Supervisors. Otherwise the family members were punished invariably. In 1901, David and 7 others were punished for not informing about Chicken Pox. Chariappan was punished by 2 months rigorous imprisonment for not informing about his sister getting chicken pox. Chariappan appealed to the High Court of Mysore who rejected his plea and he was warned to undergo the punishment (Administration reports).⁷

It was almost impossible, during such periods, to bring chicken, mutton or beef to the colonies. Everyone had to take inoculations. The workers were not allowed to come to those places where the officers were visiting for the checking of hygiene.

Cholera

Cholera appeared for the first time in 1891 AD. In 1892, once again it appeared ferociously. It relapsed in 1901, 1902, 1908 and 1909 AD. On an overnight in February 1899, nearly 5000 people ran away from the camps. All these diseases had troubled the workers time and again till 1930 AD. During 1932-34, 154 people died of plague and 29 people died of chicken pox. In 1918, influenza had killed 46 people. Sometimes, even the whites were also suffering by these diseases (Simmons)⁸ finally the companies had to face the problems due to these diseases. The workers were fleeing the colonies during such times. Nobody was coming forward to join the companies.

Accidents and Compensation

The workers were subjected to accidents due to rock bursts, fire or falling of rock boulders or other objects, quite frequently. The number of accidents in the period of 1908-1946 was more in KGF compared to Transvaal (except 1920-1930 period). During 1920-30 period 148 accidents took place, between 1930 and 1940, 185 and in 1940-46 it rose up to 200 accidents. But, the management did not bother about workers. Instead, it stated that it happened due to the negligence of the workers. In 1923, for the first time a safety centre was started (Janaki Nair, 1998)⁹.

Thousands of workers were extricating gold from the deep dark tunnels of the earth. On an average 60 workers died from 1891 to 1940. Besides this, hundreds of workers were becoming handicapped due to accidents. In the next few years, the number of accidents had increased. It was 114 numbers in 1900 and 112 in 1913. Forty two people had died in single accident in Edgar shaft due to snapping of cable of a cage. In 1931, in the Nandidroog Mines, 53 people died in fire accident. As the mines deepened, the number of rock bursts was also increasing. In 1916, due to rock bursts 200 workers had lost their lives. By 1924-25 more and more rock bursts occurred.

Mainly 3 types of accidents were happening: (1) Slipping down through winzes and shafts. (2) Accidents during blasting and (3) The snapping of iron cables and cages. If the accidents happened due to negligence of the workers by not following the mine safety rules, the workers were held responsible. Even though they escaped from the jaws of death, they could not escape from punishment (Table 2). If a workers slipped in to a winze or a shaft, he himself was responsible. In later days, for this, the maistry, blaster and machine operators were held responsible. These 3 category of employees were having training / competency certificates and were paid little more ex-gratia.

When a research was conducted to know whether higher temperature inside the mines was responsible for workers deaths, it was found in 1920 that out of 19 deaths, 9 had died due to slipping down the ladders. There were 2 reasons for this: (1) Percolation of substratum water on the ladders and (2) Tiredness of the laborers due to insufficient food. In a rock blast that happened in 1960, several workers were caught in between, after three days one person was found alive (by name Amavase). He cried when he was hit by a crow bar on his head. But, he recovered after he was shifted to hospital.

The Govt. introduced a bill on labor compensation in January 1928. Before that, companies were doing the accident insurance. Company was deducting 2 annas per month from those getting 8 annas per day or less (workers worked in the mines) and deducting 1 anna (workers working on surface) as premium for insurance. The same thing was 3 annas and 2 annas for those getting 12 annas or less salary. For those

getting 12 annas or more, they were deducting 4 annas and 3 annas respectively. For wages of 1 rupee and more, 6 annas premium were deducted.

Full salary was paid to any worker injured in accident from the date of injury to the date of joining work. If anyone was partially handicapped and was not in a position to do the work, he was paid according to the afore mentioned slabs, Insurance of 50 to 100 rupees, 75 to 150 rupees, 100 to 200 rupees and 150 to 350 rupees. In case one was fully handicapped, 150, 200, 250 and 300 rupees were paid as insurance. If the workers died in the accidents, the same amount was paid as insurance to the families. If the worker was not having any nominees, the amount was not released fully but only 25 rupees were paid for performing the last rites.

As agreed upon between the mining companies and the insurance companies, for every 100 rupees, 20 annas were deducted as premium for the workers working on surface in mines and offices. 30 annas were deducted from the salaries of those working in the mines. The total sum paid as premium by all the mining companies in 1929 was 1 lakh rupees.

Number of Deaths due to Accidents^{10*}

	No. of Accidents	1895	1898	1909	1919	1929	1939	1946
1.	No. of deaths per 1000 workers	7.29	8.88	14.34	8.19	12.25	6.03	7.66
2.	No. of deaths outside Mines	0.69	0.66	0.36	0.56	0.46	0.10	0.00
3.	No. of deaths inside Mines	7.01	2.66	5.73	4.54	6.66	2.72	0.69
4.	No. of deaths inside & outside Mines	4.05	1.80	3.64	2.79	3.74	1.80	0.41
5.	No. of workers who crushed one lakh tonnes of ore	5124	5546	3905	3475	2797	3039	4356
5a.	No. of deaths during the above work	20.80	9.99	14.20	9.69	10.47	6.36	2.18
6.	No. of workers who worked for making 1 lakh £	1268	1257	1374	1304	1093	1822	3197
6a.	No. of deaths during the above work	5.14	2.26	5.0	3.36	4.46	3.81	1.60

Whatever may be the precautionary measures taken by the company several workers were losing their precious lives in accidents. It is learnt that during 121 years of mining nearly 7000 persons lost their lives and nearly 16000 workers were seriously injured in accidents. Besides, working in dark ill-ventilated tunnels, they had to fight with several other mining hazards and in the process of mining. Sometimes unknowingly, sometimes without any alternate, and sometimes due to machinery faults workers were caught in accidents.

When the accidents happened, they were investigated thoroughly to understand how it happened? Was it possible to avoid it? After getting the reasons, precautionary methods were adopted henceforth. When the old records were examined keeping this aspect in mind, it is realized that, earlier for every 1000 workers, one was losing the life and later for every 2000 workers, one was dying.

In general, in all accidents the most common limbs affected were the hands.

The details of accidents in between 1971-76

Name of Mines	Number of accidents	Injury to		
		Hands	Legs	Eyes
Nandidroog Mines	4326	1707	637	393
Champion Mines	2072	781	284	146
Mysore Mines	2371	1005	260	269
Total	8779	3493	1181	808

Safety and Relief

In the early years of mining the KGF Mines were experiencing more accidents than mines in other part of world. In 1924-29, on an average, 200 accidents were taking place per year with 10 out of 1000 proving fatal. In 1929, a total of 283 workers died that is 15.34 persons per 1000 workers. In 1909 the number of accidents was 14.24. It came down to 6.12 in 1918. Later, it rose again and in 1923, 10 out of 1000 workers died. It was increasing further. In the next 2 decades, the number of accidents in KGF and Transvaal was almost the same.

In 1929, 3.67 workers out of 1000 died, whereas in 1919-1928, 3.05 workers out of 1000 died. In 1909-1918, 3.15 out of 1000 lost their lives. At the same time, in Transvaal it was 5.53 out of 1000 and in 1928 it came down to 2.24. To produce gold worth 1 lakh £ in 1924, 1167 workers were working in KGF and for the same purpose 495 persons were working in Rand Mines. The main reason for this was the usage of more machinery and brutal force of the black workers of South Africa. The temperature inside the Transvaal Mines was much less and the rocks are softer where as in KGF the rocks are hard, massive and the temperature was high.

To produce gold worth one lakh £ the number of workers losing life was 1.25 in Transvaal whereas in KGF it was 3.36. According to a report by the Chief Inspector of Mines, the main reason for more number of casualties in KGF was the rock type and rock burst. While blasting, the rock types were not properly examined (Roger Horsey, KGF Bulletin, 1938)¹¹. In between 1919 and 1928, 231 workers had lost their lives due to rock burst. In January and February 1928, number of rock burst had

taken place. In the early days, to prevent the rock collapse, strong wooden logs were used, which were riveted with iron and wooden pegs. Later, granite blocks and concrete packing were used.

Posters captioned 'Safety First', printed in England was displayed inside and outside the mines. The illiterate workers were not able to understand this as it was in English. Some people forced the management to print small booklets about safety in Tamil, Telugu and Kannada and other languages. They were providing first aid and surgery immediately upon accidents happening. Always, ambulance was kept ready at the entrance of the mines. KGF was the first in the country to get a permanent station of St. John's Ambulance Services. Every mine had first aid centers outside the pit head and also inside the mines at important spots such as workshops, etc., and also near mine tailings. Quick relief materials such as stretchers, blankets, iodine, bandage, dressings, etc., were available all the time.

Ambulances were kept ready mainly at 5 mine shafts. All the workers were trained in batches about first aid and safety measures. They were taught in Tamil and English and were given incentives of 7.5 and 15 rupees respectively. Fire fighting station was established in 1923 for the first time in India and it was the best in India at that time (Chief Inspector Report. 1928-29)¹².

The company was importing modern diagnostic equipments from England to equip the Mines hospital. In 1928, they spent 2 lakh rupees on modern instruments to examine all types of diseases. The Govt. was running the civil hospital in Robertsonpet. The dispensary in Champion Reef Mines area was jointly managed by the Govt. and the Sanitary Board, and also the Epidemic Disease Hospital in Robertsonpet. The Sanitary Board was giving 1/3rd of the finance for the civil maternity hospital in Robertsonpet. The mining companies were giving 6000 rupees as subsidy.

References

1. Sreenivasan, M.A. (1930) Labor in India, Socioeconomic conditions of workers in Kolar Gold Mines. Vikas publishing house, Pvt. Ltd. New Delhi. p.16.
2. Report of the Budget sub-committee of the sanitary board, April 1969.
3. 23rd Annual report of the sanitary commissioner with the Govt. of Mysore.
4. Seetharaman, K.S. (1989) Kolar Thangvail Varalaru, p. 274.
5. Shenoi, B.V. (1980) 'A brief review on total of 330 Autopsies' done so far in Kolar Pneumoconiosis, pp 394-98 & Kolar Gold Mines Centenary Celebrations Seminar on Recent trends in Gold Mines practice, Vol.2,20-21.1980.
6. Gowda, A.M.S & Shenoi, B.V (1980) 'A Brief history of pneumoconiosis' on the Kolar Gold Fields. Centenary Souvenir. BGML.
7. Administration reports of the Mysore, Nundidroog and Balghat Mining companies, BGML library.
8. Simmons, (1891-1946) Accidents in the KGF. Wages for work, pp.114-115.
9. Janaki Nair, (1998) Miners and Mill hands-work, culture and politics in princely Mysore. File no.6-19, Sl.no.38, (1919-20) Mysore Palace paper KAS;

10. Simmons, (1891-1946) Accidents in the KGF. Wages for work, pp.116-117.
11. Roger Horseley, (1938) Accident Prevention Past and Future - KGF Bulletin, Vo. IX, no.47, p.100 (Interview with workers who had worked with carbide lamps in 1940s revealed not only that gangs of workers had worked out a scheme of careful co-operation which enabled every worker to save a proportion of his fuel for home consumption, but that they developed an underground sense which enabled them to move around without lights (Interview with Devanbu, Gnanaprakasam and subramani, May 22, 1995).
12. Report of the Chief Inspector of Mines in Mysore, 1928-29.

Chapter 10

Social Conflicts, Labor Movement and Politics

With its complex mosaic of largely immigrant population in an evolving society of the KGF mine workers; the focus was more on their work and earnings. Despite their rural background of a conundrum of conflict between the caste Hindus and the untouchables as we witness in Indian villages, it was not showing up in KGF. However, in 1907, there were clashes between Punjabis and workers over the public tap water. The Punjabis objected to the collection of water by the low caste Tamil ladies from public taps. The ladies had used choicest abuses and had uttered that the day was not far off that they (Punjabis) would be suitably taken care of! This type of warning was going on every now and then. The Punjabis complained against the Tamil women to the companies. But the companies did not bother much as it was not a big issue. This tap water issue continued up to 1942, when one fine morning it gained gigantic proportions.

Everybody was collecting water from the same tap earlier. Because of the differences between congressmen and scheduled castes federation, the orthodox Hindus demanded 7 separate taps for them. The caste Hindus started abusing the scheduled caste women who came for collecting water. When the caste Hindus had demanded 7 taps exclusively for themselves, the mines supervisors had agreed to it. But, the Scheduled Caste Federation pressurized them to take back this decision.

The Chief of Adi-Dravida Sabha was founded in 1920, and way back in 1925 the Mysore Govt. renamed the terms 'Panchama' and Holeyá' as 'Adi-Dravida' and 'Adi-Karnataka'. In 1942, a film by name 'Nandanaar' directed by M.M. Dandapani Deshikar was banned in which Nandanaar had to undergo 'Fire Test' before going to heaven. The workers had protested against this saying that this was a ploy by the caste Hindus to lead masses into superstitions. In the colonies, the number of schedule castes was more than others. In spite of any differences, there was a compulsive need and inevitability to live together in the colony. There were Panchayath forums in all the colonies and all disputes were solved there itself (Deshpande)¹.

The miners' township gradually evolved as a social laboratory with new thinking

on existing beliefs and questioning the old practices. Charles Todehunter has recorded in his report of 1937, that several matters such as bride and groom negotiations, etc., were discussed and settled in the Panchayath Forum. During this time, there was sort of social awakening among the workers and they wrote several creative dramas, poems and handbills. A drama called 'A Kolar Home' by Srinivasan had touched upon a very sensitive subject of how prostitutes had destroyed the homes of workers and how they were exploiting the weakness of men and make them dance according to their tunes. Srinivasan in his poetry had bitterly condemned those who criticized the Adi-Dravidas who had embraced Vaishnavism and taken public oath not to touch beef and also against those who criticized the practices of Adi-Dravidas (Ladykalpatham, 1907)².

In the same poetry, he had mentioned about a person called Paravannan (a washer man). He had converted himself to Vaisnavism and was smearing Vibhuthi on his forehead, shoulders and chest. He had adopted the food style of Hindus. Later somehow had transformed into a Swamiji. He was born as an untouchable in the village and had become a Brahmin in the camp. He was grazing buffaloes in the Landlord's household and ran away as he was unable to repay his debts. Because of the currency of the Kolar mining (living in 'A Kolar Home') he was getting respect and the people were touching his feet. So, he had become a Swamiji overnight.

He continued this way to become a 'Guru' as called by his followers, shaved off his moustache and beard and sported a big 'Naama' on his forehead. He pretended to read the mythological stories seriously. He had totally forgotten his olden days when he used to carry old clothes on the donkey's back and washed them in a stream. It was described sarcastically in the poetry that the tongue which was tasting beef then is chanting Haribajan now.

Insulted by this, the Swamiji filed a defamation case under IPC in a lower court. Srinivasan Das argued that he did not criticize the Swamiji exclusively and it was about some people in the colony. He pleaded that the court may reconsider the verdict. But the Justice did not agree to it. He had not only provoked the Swamiji but also had reminded him of his old forgotten life and had called him by names such as *Paravannan*, *Muda Paravannan* and *Kadaikettavanna*, etc., thereby insulting him. Presently, the common people are respecting him and now he belongs to general public. For disrespecting him, Srinivasan Das was awarded a month's jail term.

Poosamy had brought pressure on Madras and Mysore Govts. to introduce a legislation to change the terms '*Paraian*' as Adi-Dravida. Also, he had requested to provide educational facilities to them. When the 'Dravidan' periodical was started, one column was reserved exclusively for rational thinking and self respect of Adi-Dravidas (Seetharaman, K.S., 1989)³.

He had written another poem in 1907, in which he had described the plight of earlier period workers when they were earning so little and were drinking 'Kanji'

(rice water) and were wearing torn clothes. Now, in KGF, they are able to eat hot rice with mutton (Srinivasan Dass, Ve, 1907)⁴. Whatever punitive fines and punishments were meted out by the White masters, are they not better than the Landlords in the villages who had fleeced them for centuries (Vazhinadai Chindu)⁵. In addition to it, they could drink merrily in the arrack shops in the bazaar and eat fried beef. They had all sorts of fun in KGF, which was beyond any Indian untouchable's imagination (Vazhinadai Chindu)⁵. The monthly salary income they were getting had not only given them a new freedom in life but also had awakened in them a social responsibility. Thus the Kolar Gold Mining town became an epicenter of social revolution among workers. In a social sense the workers tasted some liberation in the Miners' township when compared with the oppressive feudal society of the rural clusters from which they had migrated. This was a positive change in the economic uplift.

During the First World War, in 1919-20, there was an acute shortage of rice and the people had to eat the cheaper Burma rice in place of Kuchala rice. As a consequence they suffered from intestinal ailments. 40 people died due to this problem in KGF colonies. If this Burma rice was soaked for idly, dosa overnight, it used to dissolve after some time in water. At the same time, the rural folks without any alternative were searching for the grass seeds stored by the white ants in the termite mounds. They were eating it after cooking (Thurston, E., 1909)⁶.

If, eating beef was scornful to the upper caste people, for the Adi-Dravidas it was a sign of difference between the two and it became a sentimental aspect for them. They were actually not in a position to eat any other type of non-vegetarian food although everything was available in the market. They simply could not afford it. The following poem was written by a Parivannan (washer man) after realizing that he had attained right path in life by giving up beef eating. That belief led him to write this poem in Tamil language:

“What if a man Eats beef?
That's his selection...
Did almighty say, don't eat?
By eating it, will there be any
Obstacle to go to Heaven?” (Verapatham in Ladykalpatham, 1907)⁷

In front of the arrack shops, fried mutton pieces, roasted bread, fruits were available. The tongues which had tasted only rice water (Kanji) found a new taste in coffee, opium, mutton and bread. But, all these were to be tasted once in a blue moon, but not daily for the workers. But, the fried beef pieces were available always to munch along with the rice water (Kanji). They were fondly calling it 'Ding Ding'. Added to that, they had pants, shirts and boots in place of torn clothes and chappals (Verapatham in Ladykalpatham, 1907)⁷.

In 1940, Dorai Arasan, a Tamil youth had written a poem about gold, entitled, 'Gold is not available easily'. In that poem he had described the plight of mine workers as the ones who dug the soil for gold but got buried in soil in the process, their trials and tribulations, handicapped due to accidents, those who succumbed to silicosis those who got very less wages but had to pay unwarranted fines and got punished for mistakes not necessarily of their own, bearing all this they suffered in silence and sacrificed their lives, these poor workers.

They were telling, 'we are the workers who take out gold, keeping all our beliefs and desires for tomorrow'. Nobody was ready to offer his daughter in marriage to us'. They were moaning in their words, 'Facing all these dangers, we bring out gold. But there is not even a piece of gold on our females (Duriairasan, 1951)⁸. Even then, they were trying to adjust to the new environment of KGF, trying to peel off the cover of their past life, which was full of sufferings and humiliations (Janaki Nair, 1998)⁹. This new life was appearing as a ray of hope for the people who were tired of working for generations after generations – all for others.

Even though the workers were getting meager salary, they did not have any restrictions. They were cycling in the open streets. In 1920, KGF saw a touring cinema and therein secular relationships and feelings were created between workers. In 1930, the leader of Adi-Dravidas, Pooswamy hired the Mysore Mines Hall for screening the movie, 'Sathyavan Savitri'. As a White Officer commented that, 'that much is the intellect of workers', Pooswamy and all the workers joined together and constructed the Jubilee Hall exclusively for themselves (Reports, 1935-1936)¹⁰.

Adi-Dravida leader, M.C. Perumal, in 1942 had advised the Adi-Dravidas, 'If any White officer insults you by calling you in singular words, you too reply in the same words'. Although the miners were illiterates, with modern equipments used in mining, they were freely using many English words. There were no equivalent words in Indian Languages. For this reason, the elementary knowledge of English Lexicon was springing up on its own in the workers such as shaft, winze, head gear, hoisting, rock burst, silicosis, cage, plot, cyanide, canteen, store, etc.

Gradually English, besides its power and administration, had emerged as a symbol of pride and was prevailing over everyone. For this reason, naturally, the Whites who had administered the mining companies over a century had become supreme in the eyes of the low caste workers as it happened here and elsewhere in the world and wherever they went (Janaki Nair, 1998)⁹. In later days, beyond the expectation of the Whites, the Adi-Dravidas were talking mostly in English. In 1942, nearly 2/3rd of the people of Mysore State did not know how to write or read any language except conversing in mother tongue. At that time compared to other parts of Mysore, in KGF, 5320 males and 1625 females knew English well.

Caste, Creed and Labor Movements

By the time the workers in KGF realized that they were undergoing injustice, half of the history of the KGF Mines was over. For the first time in 1940, they formed their association to fight for their rights and privileges in accordance with their labor input, and they started pressing the companies to listen to their demands.

The company, since the beginning, followed the principle and policy of 'hire and fire' very strictly. They were taking the workers as and when they liked and were removing them when not needed. The entire work was proceeding on contract basis. Ever since the East India Company entered this country, no facility of any kind was given to the Indian workers. They had only one ambition of plundering the wealth of the third world countries. Whenever the company officials came to know about the strengthening of the labor groups, formation of associations or the speeches by the trade union leaders coming from outside and addressing local unions, they used to take prompt action and dismissed the concerned workers responsible for it.

In 1930 AD, because of the interference of the State Govt., the company agreed to provide electricity and other facilities to the workers. The dissatisfaction among the workers was increasing day by day and everybody was waiting for a day to fight together. Although smaller incidents were happening here and there, all of them were nipped in the bud. The labor organizations of other states and also within the state were observing the happenings silently. As if the pent up anguish of the workers exploded at once, all the workers of Oorgaum and Champion Mines stopped their work and came out of the mines on July 16, 1940 AD. Next day, Nandidroog and Mysore Mine workers also joined them.

From then onwards the workers did not look back and did not yield to any of the assurances of the management and stood like one to protest. Union leaders K.C.Phillips, S.R. Shanmugam and local merchant A.T. Lakshman stood behind the workers. The attempts by the company management and the Govt. to break the strike proved to be futile. The Govt. distributed handbills to the workers in which they were warned of dire consequences and urged them to join work immediately. Next day i.e., on 17th July, Mysore Lancers and Infantry reached KGF and waited for further orders.

On 26th July 1940, the Govt. issued handbills once again and announced that there will be an increase of one anna per month in the salaries. Next day, the Dewan of Mysore Sir Mirza Ismail reached KGF and he met the union leaders in the Oorgaum Gymkhana Grounds and urged them to accept the offer. The workers rejected his plea and demanded that company should arrive at an understanding with their leaders. They sat on Dharna in front of his car. Only when the officers agreed to negotiations, the car was allowed to move. Then, the company announced that the talks will be held with Shanmugam and Phillips on July 29th. But, the same night, they were

arrested and kept at an unknown place. Knowing this, the workers went on a big procession on the next day protesting against the arrest of their leaders.

In the first week of August, 1940 many laborers left KGF. Not knowing the duration of the protest, some of them left for their villages on foot and some started searching for jobs in nearby villages. After knowing the struggle of the KGF Miners, labor leaders and social workers started coming to KGF. Among them, TSA Acharya, T.R.Ramachandra, P.R.K.Sharma and V.V. Giri (Former President of Indian Republic) were also there. Direct talks and letter correspondence took place between the company officials and labor leaders several times from October 1940 to February 1941.

Finally, the company agreed to setup a committee to look into the demands of the laborers with some stipulations. When the company agreed to all the demands, finally the workers attended their work on 12.02.1941. Dewan Bahadur Mathan submitted a detailed report encompassing the difficulties of the laborers and their demands during the protest period from July 1940 to February 1941.

The labor leaders, who were expelled from the companies, were holding an office in the neighboring Kuppam (A.P.) 25 kms from KGF. The labor leaders staying in KGF were going to Kuppam once in a while for discussions. Some were engaged secretly in enrolling the workers to the unions, and they used to address them under a Tamarind tree, near Booduguru situated between KGF and Kuppam. Thousands of workers used to gather there. Leaders coming from various places have addressed the workers there.

The Mysore Labor Act was introduced in July 1931, since then innumerable letters with appeals started coming. Finally, the Mysore Govt. gave permission to start a labor union composed of leaders elected from the workers. There was an air of victory on 31st August 1941. The workers and the expelled leaders also joined work. The leader of the labor movement Sharma was taken in a procession in a decorated Palanquin Pulled by 21 pairs of bullocks. The labor union elections were held in 1942. Then onwards, politics also entered inside the mines along with the workers. By that time, exactly half of the history of KGF was over.

The above unions were registered as per the Mysore Labor Act in 1942. But, their success story had started several years ago. Strong protests and *Bundhs* were held in 1908, 1920 and 1922. 16,000 workers had participated in a protest rally in 1930. This had gone on for 21 days and 48 workers were injured in this rally. In 1923, for the first time, Adi-Dravida Association had started working. Although this was not a trade union, it was striving honestly to remove the social obstacles of the Adi-Dravida Community. During the later days, KGF became a strong fort of Scheduled Castes.

The Scheduled Castes Federation Trade Union was registered in 1941 and started functioning. It succeeded in enrolling 30% of the workers as members. J.C.Adimoolam

and P.M.Samidurai were its first leaders. This union continued in later days as the Republican Party of India. The Indian National Trade Union Congress (INTUC) had links with Indian National Congress. Similarly, All India Trade Union Congress (AITUC) had links with Communist Party of India. Both these bodies had intimate contacts with the laborers.

S.R.Shanmugam and K.C.Chengalaraya Reddy (First Chief Minister of Mysore) were leaders of INTUC, whereas V.M.Govindan and K.S.Vasan were AITUC leaders. Samuel B. Arakkal and Kannan Nair had taken lead in the Socialist Party. All These unions got prominence only after 1940. Much earlier the unions were engaged in mobilizing the workers. In 1928, the Secretary of South Indian Labor Union, Earnest Kirn had met the management board to discuss about the trade union matters. This meeting later led to the birth of trade unions. 4 workers had died in 1935 during a protest rally and this gave further strength to the unions. In July 1940, the Oorgaum miners had gone on 27 days' protest. In the 1945 protest, 18,000 workers participated. The protest organized by the Communist Party in 1946, continued for 78 days with the participation of 20,000 workers. The common citizens also had responded to this.

The workers associated with these trade unions never got any relief or pleasure from these unions. Only benefit they got was increase of a few rupees at the time of revision of the pay. It only means that the unions had hand in glove understanding with the management for their own benefits and they pushed the laborers deep into the misery of the dark tunnels. Several leaders like S.O. Bhagyanathan, Magimynathan, S.R. Shanmugam, A.T. Lakshman Mudaliar, K. Chengalaraya Reddy, M.V. Krishnappa, Pandith Ramalingam and M.C. Perumal participated in the famous 'Quit India' movement of 1942 (Nair, G.K., 1980)¹².

Labor Strikes

A total of 35,000 workers and their family members had settled in KGF in 1905 AD. That year had seen the maximum production of gold in the century (Seetharaman, K.S., 1989)³. In the Pre-Independent India, KGF Mines were the biggest industry in the country. Those days, another important industry was the cloth mills in Bangalore. After 2 world wars and Indian Independence, many companies cropped up in India. Unfortunately, Mysore and the Indian Govt.s did not allow any other industry to come up in and around KGF (Janaki Nair, 1998)⁹.

The companies got more powers from the Mining Regulation Act of 1906. If the company got any doubt, they could take action on any worker. But, the companies did not get any inkling of a bigger threat in the form of a strike in the later days. On January 1st, 1929, the Govt. introduced the new Labor Compensation Act in lieu of all earlier acts. The John Taylor Company, while agreeing to this act, put some

conditions to the workers. According to that, all the workers had to undergo medical examination compulsory and had to give thumb impressions in the newly started company ledgers of the Central Labor Registration Centre. Accepting this, in April 1930, nearly 7,000 workers got registered.

At that time, in April 1930, in Oorgaum Colony, a handbill written in Tamil appeared on a rock boulder. It said that no worker, miners, drillers, earthen workers and over ground workers, should give thumb impressions to the company. All those workers who had served for 10 to 30 years got enraged by this. After collecting enough rice in stock, on 8th April 1930, they went on strike. The matter reached all the labor colonies and instantaneously a big crowd of workers met the Chief Inspector and the District Commissioner A.V. Ramanathan and questioned them as to what would be the consequences if the finger prints were given (Proceedings, 1930)¹³.

The strike which started in a small way led to a rift between the workers and the contractors. The labor registration officer Paul Jones assured them that it was only to identify the workers, but nobody believed him. The efforts of the contractors did not succeed as a result of which all the workers of the 5 Mines participated in the strike, thereby stalling all the mining activities (The Hindu, 1930)¹⁴.

The main intention of this proposed system was to identify the thefts with the help of finger prints. It was introduced by Bertalin of John Taylor Co. The workers who had already given their finger prints in the ledgers started pressuring to return it back. They forced them to take back the registration certificates given by the Central Labor Registration Officer. Ralph Neyi, Chief Executive Officer of the John Taylor & Company Stated that this is a right decision as per rules. It is to prevent the laborers from going to another mine under dismissal and to identify the workers, he had argued.

This matter was printed in Tamil by the company, stating that there was no conspiracy to deceive the workers. It had asked everyone to take back the old addresses already given on April 4th and to give fresh finger prints before April 7th. When the workers went on strike, the company asked them not to insist on gratuity at the time of retirement from service. The workers did not agree for any of these points. On April 6th, 200 reserve police and 200 soldiers of Imperial Service were moved from Bangalore to KGF.

On April 8th, 6000 workers assembled peacefully in Robertsonpet. While returning, 300 of them surrounded the colony of Tamil Security Staff who were preparing to go to work and prevented them. Enraged by this, the management ordered the police to fire at the workers. In this melee, 48 workers and 6 policemen were injured and the condition of 2 persons became critical. The District Commissioner asked the laborers to chose their leaders immediately so that they can participate in discussions with the management. But, the companies did not agree to hold talks with the leaders. Anticipating a bigger strike, the District Commissioner, Ramanathan in front of 2000 workers, 50 workers destroyed the finger prints document of 7000

workers in the court premises. On 11th April salaries were disbursed to all the employees and the management felt relieved (File no.159/29. Sl.no.1. KSA)¹⁵.

The workers who had gathered near Nandidroog Mines placed their list of demands before the company. They pressed for hospital facility, sickness wages, salary facility for contract laborers, provident fund for all the workers, attendance bonus for contract laborers, recognition of labor representatives, pay for strike period, etc. All these things were conveyed to the management through handbills. The company should agree to all the points or else, on payment of the salary dues, the workers would go back to their native villages, leaving the jobs (The Hindu, 1930)¹⁶. But on April 14th, the management cooled down a bit and agreed to most of the demands except payment of wages for the strike period and setting up of the provident fund. If the contract laborers voluntarily gave the finger prints, service gratuity would be given to them, the company announced.

As the workers were not ready to agree to any of the conditions of the management, the workers decided to continue their stir. On April 20th, the District Commissioner informed the Govt. that unless strict measures are taken, the things were going to be adverse. The Govt. declared immediately that, no meetings should be held more than 5 persons at one place; they should not carry any type of weapons or sticks, and should not beat drums, etc. The labor leaders conducted meetings around Bangalore and other places to support the mine workers. When 400 workers were on their way to work in Balaghat Mines, a crowd of women and workers stopped them and sent them back. Next day some workers got down the mines, but knowing this, workers from all sides came there and shouted to come out of the mines (The Hindu, 1930)¹⁷. The police requested the people gathered there to go back. When none listened to their words, the police fired 2 rounds at the crowd. 20 people were injured and the condition of 2 persons became critical (File no.171-29)¹⁸.

Even then the crowd did not move and they got into clashes with the police. They demanded that the Chief Executive should come to that spot for discussions. When they were told, that the Dewan of Mysore would visit on April 27th, the mob dispersed (File no.171-29)¹⁹. A meeting was held on 27th in the presence of the Dewan of Mysore, in which 20 representatives of each of the mines participated. It went on for the whole day and in the end it was decided not to take finger prints and signatures. From the next day the workers started going down the mines and a 21 day strike came to an end.

This strike was completely managed by the workers. No leader was in the front and that was a special feature. There was no violence during the strike period. No property of the company was damaged. Without leaders, the workers had handled everything with patience. The company management had seen to it that no leader emerges among the workers. In 1934, a white officer had attacked an Indian worker and in return, the worker had attacked the white officer. The Indian worker was

dismissed from service and the White officer was suspended temporarily. On September 1st, 1934, 100 workers of Nandidroog Mines had opposed it, but they turned up for work the next day (File no.171-29)²⁰. In another incident on May 12, 1941, the Mysore Mine workers stopped the work to protest against the attack on an Indian worker by an European Officer. The workers demanded that the European Officer be removed from the service (RCIMM. 1940-41)²¹. 800 workers of the Mysore Mines went on strike from the next day (The Hindu, 1941)²². At the same time, another European officer had booted an Indian worker in Champion Mines. The workers went on strike demanding his removal. The supervising officer of the mines conducted an enquiry into the incident (Reports. 1940-41)²³.

The matter reached all other workers. The District Commissioner and the Mines-in-charge assured that the culprit European officer would be punished (The Hindu, 1945)²⁴. At the same time, the management agreed to give attendance bonus and then the workers returned to work. If any worker was removed from service, without any valid reason, then all of them together would go on strike, the workers warned the company. Later, the workers were going on sudden strikes for any type of injustice to them. The management and the Govt. were incurring losses due to such strikes besides embarrassment (File no.31-37)²⁵.

In a fortnight, the workers of Mysore Mines could work in any of the shifts and they were getting 2 Sundays as holidays, added to that they could abstain up to 3 days. But, if they abstained for 3 days consecutively, they had to work on Sundays in Mysore Mines. For this reason, the Mysore Mines workers went on strike. Other mines workers showed sympathy with them. Opposing this, some workers were about to get into the mines. Other workers prevented them by surrounding. They pelted stones at the officers who requested them to return to work. The Panchayath Houses in the colonies were put on fire. They attacked Punjabis and others who did not extend support to the strike (File no.987, 1935)²⁶.

The workers gathered in front of the General Office of Mysore Mines, where gold was kept in a locker. Fearing that the workers would loot the gold, the administration, under permission from Bangalore, ordered to fire at them, one worker died in firing. The management was planning to dispose of the body before the workers got enraged, but in the meantime the workers from Oorgaum and Mysore Mines also had joined the strike.

The police were struggling to control the mobs that were attacking the bungalows of white officers and other offices, whereas the workers of Oorgaum and Champion Mines were destroying everything that was on their way. All attempts to stop them failed and police had to resort to firing once again in which one more person died. Just then, the new bonus rule was cancelled and the workers who did not agree to it declared a strike. Now, the company administration and the Govt. were caught in a fix, completely. If the permission was given to select and elect their own

representatives, then unions would raise their heads and also strikes would follow. That's why the Govt. was postponing this issue. But now, they had to agree to it (Fortnightly, 1935)²⁷.

Strike of 1940

The Mysore Mines Act, 1906, had kept all the labor leaders away from KGF. The leaders were not allowed to anchor in the colonies also. The strike of 1930 had laid emphasis on worker's wages, internal conditions of the mines and colony life. But, in the 1940 strike, clashes started appearing on the issue of faith and loyalty of the political parties in the workers. The outside leaders were trying to penetrate into the workforce (Fortnightly, 1935)²⁸. That time, the Second World War had started. The prices of all commodities had gone up steeply and it was becoming very difficult to lead life. In 1939, a bag full of good quality rice was costing 14 rupees and in two years it had raised to 24 rupees. During this period, the skilled workers were getting 26 rupees and unskilled workers were getting 17 rupees per month. The war allowance given to the workers in Bangalore was given to KGF workers only after a warning and a strike. The prices had increased by 75% between 1936 and 1943 (Statistical abstract, 1923-48)²⁹.

In 1921, the population of KGF was 87682, whereas in 1931, it had come down to 85103. But, after the war, in 1941, it had gone up to 133859 (Census, 1941)³⁰. The population had increased by 45% in Bangalore, 40.5% in Mysore and 57% in KGF. This also exerted pressure and burden on the workers leading to strikes (Janaki Nair, 1998)⁹. Strike had started on the 16th July 1940, in Oorgaum Mines. The same evening, the workers of Champion Mines and next morning the workers of Nandidroog Mines also joined the strike (The Hindu, 1940)³¹.

Workers demanded gratuity, war compensation, lower house rents, provident fund, 15 days leave with salary, permission to start labor unions and to make contract workers permanent, etc. They also suggested collecting 1 rupee from mine workers and 12 annas from over ground workers every month to pay to the persons retiring every fortnight or injured in accidents. The mines administration agreed to implement some of them, but the workers did not agree to this (Reports, 1940-41)³².

All the workers sat together till their demands were fully settled. The administration said that, about setting up of labor union, it was the subject matter of State Govt. but the workers did not yield. By 1942, several labor associations were trying to enroll the workers. They were not taking up the complaints of those who were not enrolling as members. Some anonymous hand bills had appeared overnight on the walls here and there. They had written in such hand bills that Sharma was a deceiver, talked something outside but did something inside, he called himself a tiger but actually he was anti-labor, this tiger got a salary of 100 rupees to add ghee to his

meals, etc. The laborers were complaining that Phillips was working amidst laborers whereas Sharma and his wife were advising workers, from a distance, to keep the huts clean and tidy.

In one of the meetings in the Mysore Mines, the women had made him to leave the meeting. It was because of his comment that the women should be strong enough to give birth to healthy children, but, instead today's women were engaged in street fights near public taps. When 50 workers were removed from Oorgaum Mines with the intention of reducing the workforce, T. Ramachandra had called for a meeting to discuss this matter. Due to continuous struggle and talks, it was decided to pay 7 rupees up to 31st March 1942 and later 1 rupee 8 annas as allowance to the workers based on Madras city index up to 108 points and later for every point, 3 annas increase was announced. But, these things did not apply to the contract laborers.

The plan to reduce the workforce because of decline in production was continuing. In 1942, the supervisors of 4 mine clusters, suggested to remove 1500 workers. During the same period, lot of losses were incurred in the Oorgaum Mines due to fire. On 22nd June 1942, 251 workers of Mysore Mines were stopped abruptly. Phillips tried to avoid this to his best, but he could not succeed. They could not do anything as there was no unity among unions (Simmons)³³. The families of the retrenched workers were dislodged from the company accommodation. Everyone was getting ready to go on another strike. But, the political leaders had their own calculations. Sharma, Ramachandra and Acharya were fighting with the management to stop the retrenching of workers. They also condemned the role of the leaders and forced the administration to dismiss them from work.

Caste, Creed, Labor Unrest and Politics

As the Adi-Dravida leaders had reached the frontline, the Scheduled Caste Federation was established in July 1942. By this, the Congress leaders realized that the caste factor is very important in politics. They were propagating the idea that Congress is not to be believed while discussing about the position of Adi-Dravida leaders to casteism. J.C. Adimoolam was repeatedly stressing that the word 'Parayan' should be removed and to eradicate untouchability. The laborers were asking about this matter in the Congress party only to embarrass them. Adimoolam raised a question in a meeting of the Adi-Dravida Maha Sabha. He said, 'I am talking with due care. It is better for all of you to accept the British rule. We have to accept their power, service and patience. Mahathma Gandhiji opposed the subject of eradication of untouchability in the Round Table Conference. After returning from England, he has given the name 'Harijan' to us and thereby he has separated us permanently from the Hinduism and thereby he has insulted us. He has not elevated our community nor removed untouchability'. These words of Adimoolam had taken the Adi-Dravidas far

away from the Congress in KGF; they had exposed the inner secrets of Congress in the periodical 'Tamilan'. Even though many other leaders were there in the Congress party with many followers, Ramadas was later made a Member of the Rajya Sabha.

In 1942, what was boiling like lava between the Congress and the Adi-Dravidas exploded all of a sudden. 300 Adi-Dravidas had gathered to unveil the statue of the leader of Madras's Justice Party, A.T. Panneer Selvam. Adimoolam was also there. The Congress workers pelted stones at them, threw soda bottles and destroyed the Dias. Including Adimoolam many were injured in this incident (IGP to Dy. Commissioner, 1942)³⁴. Next day, 400 workers from Oorgaum Mines gathered and started shouting against K.C. Reddy. They removed the flags they themselves had tied. At that time, 1500 Congress supporters carrying sticks and pelting stones, moved towards Periline to attack Adi-Dravidas. Heeding to the advice of the police, the Adi-Dravidas retreated and the Congress men advanced pelting stones. The police fired at them as a consequence of which one person died and several others were injured.

The president of the Adi-Dravida Sabha, Das, while condemning the congressmen said that a suitable lesson would be taught for their heinous acts and asked the people not to join congress who had ditched people in the Poona Agreement. He said, the deceased person in police firing A.D. Muniswamy, though a pro-congressman, was an innocent person and was in actuality against his own clan. The true colors of congressmen, who were talking of non-violence, had come out in this incident, he said. The congressmen had realized that doing politics in the name of casteism in KGF was not going to help them in anyway. K.C. Reddy started showing interest in the deceased persons, visited the Champion Mines and placed the demand for the removal of those responsible for violence such as Adimoolam, Jagannathan, Anthony, Supervisors and others. In addition to that, he complained that the Adi-Dravidas are rowdies, hooligans and they are helping the police.

The Central Adi-Dravida United Association which began in March 1942 gave a Statement 'that Adi-Dravidas should not join any other party. They should fight for their own development'. Dhanpal of the same association said, 'Like Muslims, Adi-Dravidas should also get a separate nation (IGP to Dy. Commissioner, 1942)³⁵.

Many Adi-Dravida workers did not participate actively in the Quit India movement in KGF. The Adi-Dravida Association did not show any interest in this matter. Only the workers of Champion Reef Mines were protesting against not getting dearness allowance and in some mines, the workers were fighting that they were not getting war allowance.

Excepting the mines area, in all other areas the congressmen, shop keepers and merchants mostly belonged to upper castes. Although KGF had maximum number of workers in the state, only 15 workers were arrested in connection with the Freedom Struggle. Whereas in Bangalore 78 workers & 27 workers in Bhadravathi were arrested

and sent to jail (Report. Dec., 1943)³⁶. On 29th July 1942, when Adi-Dravidas were enrolled as members of Adi-Dravida Association, the congressmen had beaten them. By doing this, the congressmen were able to attract them to the party sometimes. In the same month, the restrictions imposed on communist party were withdrawn.

Caste, Creed and Communists

The Communist Party had sent P. Srinivasan to mobilize the workers for the party. That time, Mysore Mine workers sent out Sharma once again (CRR, 1944)³⁷. Govindan was a staunch Gandhian before embracing communist creed. He had developed good relations with the workers by working hard for their cause. The communists had an opportune time because of the boycott of the Congress party. By 1943, Govindan had arrived at a conviction 'to achieve all the demands, a major strike should take place'. Although there were strikes in 1930 and 1940, the company and the Govt. had cut short the workers' demands in one way or the other through several laws. Even then the workers were raising their demands steadily and unitedly (CRR, 1944)³⁷.

The communists had to plan strategically for bringing unity among workers. It was planned in 1945 to strike to demand the longtime war compensatory allowance and service gratuity. Dearness allowance was also added to that. If the labor organizations demanded 8 rupees and 8 annas the companies offered only 2 rupees. At the same time, in other parts of the country, iron and coal mining had started. Nearly 5000 workers from KGF had gone for work and returned back after some years. The KGF companies were facing another type of problem then. The returned workers were getting higher salaries in those mines and were demanding higher salaries here also. The company had rejected the demand for higher dearness allowance in 1943-44. On May 21, 1944, 18,000 workers struck work (The Hindu)³⁸.

Govindan and Arakkal were in the forefront of the strike. Reddy, Ratnasabhapathi and Jayamuthu of Congress tried to convince the workers to withdraw the strike. The companies declared that the strike was not lawful and the Govt. said that it would examine the demands through the courts. But, the workers did not stop the strike (President of Mysore paper Mills, 1946)³⁹. On June 22, 1945, 1500 workers returned to work but the workers of Nandidroog Mines heeded to the words of Arakkal and continued the strike. On 11th July 1945, Arakkal was banished out of the state border and the rest of the workers had to return to work without any alternative. Justice was not meted out to the workers through the courts by the end of 1945. This time, all the unions joined together and submitted a list of 26 demands. The main demand was to abolish the contract system (PMLC, 1946)⁴⁰.

This 78 days strike was the longest in the history of KGF. Both, congress and

communist parties had extended support to the strike. Even, Reddy who normally does not support any kind of strikes had fully supported this time. The KGF workers got encouragement from all over the state from both workers and the public. Leaders of communist party were coming from Bangalore and Madras. K.T. Bhashyam started collecting money for the strike. Money was also collected in Bhadravathi. Vasan and Govindan had collected money in KGF. When the company released 7 lakh rupees, the strike was called off on 22nd March 1946. The company had received exemption of 8 lakhs from the Mysore Govt. under the reason that the company had undergone losses due to low-grade ores (File no.111-20. 1922)⁴¹. All the workers were given minimum and also maximum salaries along with many other facilities such as hike in salaries, provident fund, gradual promotions, service gratuity, overtime allowance and leave encashment facilities. The minimum salary increase was 13 annas (Asian Age. 1997)⁴².

Because of a provocative speech by communists on 3rd November 1946, the scheduled caste people had attacked the houses of communist leaders. The groups started fighting with each other, ultimately police had to intervene and stop it. From there the communists moved towards Andersonpet where they torched a hut and attacked several shops. The police had to resort to firing in which one person died and several were injured. Next day, the Champion mine workers went on strike and asked the Mysore mine workers to join them and altogether 4000 people gathered. There was a fierce clash between the police and the workers. The police were finally ordered to fire in which 5 workers lost their lives (Seetharaman, K.S., 1989)³.

AITUC accused that the Schedule Castes Federation was responsible for it and there was instigation by the European Officers. They held the Govt. responsible for this tragedy. The communist party had not anticipated that the caste factor is going to haunt them like this. Realizing this, the communists declared that 'untouchability should not be observed anywhere in public places or in any aspect of life. The castes are not important to us. What are important to us are the working classes'. The company was trying to create ill will between the State Govt. and the workers, whereas the congressmen and the communists were taken aback by the opposition of the Scheduled Castes to the freedom struggle. Added to this, some were even trying to sow the seeds of hatred between the Muslims and Hindus. In the meantime, the Govt. had banned all types of assemblies and meetings.

Even then, the Scheduled Castes people were conducting meetings here and there and were condemning the use of foul words. On the 4th August 1946, the pictures of Jesus Christ and Lord Krishna were torn into pieces and thrown into the canals. The national flags were stamped in public. The photos of Mahatma Gandhi, Subhash Chandra Bose and Nehru were broken into pieces. For this reason, both communist and the congressmen were angry on the Schedule Castes for decades.

Leaders and Politics

In 1956 AD, C.M. Arumugam was elected as the secretary of the Republican Party of India. He became a Member of the Second Legislative Assembly of Mysore State from the reserved constituency of KGF. In 1962 general elections, S.Rajagopal of communist party won the seat by defeating Arumugam by just 128 votes. In the 1967 elections also Rajagopal won again by defeating Arumugam by just 4763 votes. But in the 1972 elections Arumugam won by defeating congress candidate A.K.Selvaraj by just 1760 votes and entered the Assembly for the second time. But the high court upheld an objection raised against him and cancelled his membership. Re-election was not held till the end of that legislature. President's Rule was introduced in 1978 and the elections were held once again in which Arumugam won convincingly by 8136 votes and defeated S. Rajagopal.

In the 7th elections held in 1983, Bhakthavatsalam of ADMK had defeated candidates of Janatha Party, Republican Party and Congress Party and thus Tamil Nadu politics had entered into Karnataka for the first time. He had succeeded in bringing in M.G. Ramachandiran, a famous film actor and the Chief Minister of Tamil Nadu, to KGF just 2 days before the elections. With that, the people of KGF had invited another threat to themselves. In 1988 election, T.S. Mani of Communist Party, in 1993 and 1998 M. Bhakthavatsalam, and in 2003 elections, S. Rajendran had won the elections (Felicitation Committee)⁴³. For the first time BJP won in KGF and also BJP Govt. was formed in the state.

All the political leaders had exploited the people through gimmicks and colorful words and melodrama. With their hand in glove involvement with the mines Management, they were taking advantage from inside and at the same time they were fleecing the workers also. Every month, in the salary of the workers, deductions were made towards workers welfare fund, union fees, etc. Enough fund accumulation was there due to large workforce. Besides this, money was collected from poor workers whenever they got bonus and any advance for festivals, etc. Invariably every worker had to pay some amount. Big scale elections were held to contest for the office bearers posts. Barely 1 or 2 unions in the beginning, later branched out to 10s of unions? On the eve of the elections, money and liquor were flowing freely in the colonies. During such time fights used to take place and sometimes they resulted in deaths also. Special Superintendent of Police office was established near the Champion Reefs Mines during the British times itself (Proceedings. 1925)⁴⁴.

The workers were responsible for the establishment of a number of educational institutions through C.M. Arumugam. He is also one of the founder members of the Dr. B.R. Ambedkar Medical College in Bangalore. Beside this, some people like S.R. Shanmugam, Deva Anbu, Sevagam and I. Subramanyam, had earned good name in KGF. By the time Bhakthavathsalam and Rajendran rose in public life, the Mines had been closed.

Protests and Bundh due to Closure of Mines

Several protests, bundhs were held by labor unions before closing the mines. By all these demonstrations they were able to postpone the closure of the mines by few more years. The citizens and merchants of KGF had demonstrated with the banner 'Save KGF' on 29.08.1993. On 10.05.1997 'KGF Bundh' was followed. That time, all the unions, political and social organizations had participated. On 22.05.1997 the labor unions had held a 'Token Protest'. On 27.08.1997, all the political parties, once again observed 'Save KGF' protest rally. On 26.08.1997, the students of all the schools and colleges in Kolar district had deserted the classes and protested against the closure of the mines. K. Rajendran, Vice President of the Karnataka Yuva Janatha Dal, had gone on 3 days hunger strike.

The 'KGF Protection and Development Forum' had conducted 'Save KGF' campaign. There were lawyers, doctors and intellectuals in that campaign. Social activist like Nirmal Mukherjee, V.R. Krishna Iyer, D. Thangappan, N. Ram et al. had demanded the creation of alternative jobs for the workers. In spite of all these protests, bandhs, strikes, campaigns and exerting pressure from various social quarters, there was no hopeful indication for the workers of KGF. The local MLA Rajendran had observed a 'KGF Bundh' on 21.11.1996 to pressurize the Govt. not to handover the KGF Mines to multinational companies. Some labor unions had lent support to this bandh. This was done especially to prevent the handing over to Australia's 'MOH' Company. By seeing the scale of the protest, the MOH Company decided to go back. This company had a plan to do 'Open Cast Mining'. The environmentalists argued that by doing this type of mining, the environment gets degraded and would accelerate the disaster that is already happening in KGF.

References

1. Deshpande. Report on the Gold Mining Industry, p.14.
2. Ladykalpatham (1907).
3. Seetharaman, K.S. (1989) Kolar Thanagavai Varalaru, pp.176, 184.
4. Srinivasan Dass, Ve (1907) Verupatham in Mysore Ilaka Kolar Thangavaial Ennum gold Mines. ladykalpatham kummi. Madras, p.10.
5. Vazhinadai Chindu.p.22.
6. Thurston, E. (1909) Castes and Tribes, Vol.I, p.117.
7. Verapatham in Ladykalpatham (1907) Stanza 8.
8. Durairasan (1951) Tangam Summa Varuma? Thanavial Thozhial Githam. Oorgaum.
9. Janaki Nair (1998) Miners and Mill hands-work, culture and politics in princely Mysore. p.90.
10. Reports of Chief Inspectors of Mines (1935-36) Mysore. p.21.
11. Janaki Nair (1998) Miners and Mill hands-work, culture and politics in princely Mysore. p.98.
12. Nair, G.K. (1980) Birth of trade union movements in KGF. Centenary Souvenir. BGML.
13. Proceedings of the Govt. of Mysore. 5th June, 1930.
14. The Hindu, 18th April, 1930.
15. File no.159/29, SI No.1, 20-21, KSA.
16. The Hindu, 12th April, 1930.

17. The Hindu, 25th April, 1930.
18. File no.159-29, Sno.20, 21, KSA.
19. File no.171-29, Sl.no.1, 2, 3, KSA.
20. File no.171-29, Sl.no.1, 2, 3, CB, KSA.
21. RCIMM (1940-41) p.25 and Fortnightly, 31st May, 1941, CRR, KSA.
22. The Hindu, 15th May 1941.
23. Reports of Chief Inspectors of Mysore (1940-41) pp.22-23.
24. The Hindu, 17th May, 1945.
25. File no.31-37, Sl.no.1-5, Geology, KSA.
26. File no.987 (1935) Sl. no.1-3, Residency files, NAI.
27. Fortnightly 15th Aug 1935, CRR, KSA.
28. Ibid.
29. Statistical abstract of Mysore 1923-48, (1950) table-81.
30. Census of India report (1941) Vol.XXV, Mysore, table-1.
31. The Hindu, 17 July 1940.
32. Reports of Chief Inspectors of Mysore. 1940-41, p.24.
33. Simmons, The case of the Kolar Gold Fields, p.104 & table.3.
34. Inspector General of Police to Dy. Commissioner, 22nd April, 1942, File no (1941)12-41, Sl.no.147.
35. Superintendent to Dy. Commissioner, 28th March, 1942, Coll.no.12-41, Sl.no.149, CB 12-41-147.
36. Mysore legislative council report. Dec, 1943. Pp. 344-47.
37. 15th July, 1944, CRR, KSA
38. The Hindu (Add by John Taylor & Sons) Seetharaman, K.S (1989) Kolar Tangavail Varalaru, p.145.
39. Letter from President of Mysore paper Mills, Bhadravathi to N.D.Shankar 25th March, 1946, KSA.
40. PMLC. Dec, 1946. p.104.
41. File no.111-20, Sl.no.1-10 CB, KSA: Fortnight ending 15th Feb, 1922. CRR. KSA.
42. Asian Age. 17th July, 1997.
43. C.M.Arumugam's Felicitation Committee (1983) Vidhana Soudha, Bangalore.
44. Proceedings of Govt. of Mysore. Oct. 1925.

Chapter 11

Pre-Independence Period: Threats, Thefts and Punishment

During the colonial period, the Europeans had invested money in mining, factories and horticulture by employing the local people. In many places the workers were confined to one place and were also engaged in dangerous works. They used to impose severe punishments with the help of stringent laws to keep them committed to work. In 1915, the Chief Justice of Mysore, C.J. Muller gave a verdict that, 'anybody, whether it is a laborer or an employee who is paid by the company owners, resorting to small scale thefts of gold is also an offence (The Hindu, 2001)¹.

In 1891, the total number of workers was 9038, whereas it rose to 24587 in 1900. In 1907, 34641 workers were working. In South African Mines, the workers were made to stay away from their families. They were given housing, clothes and food. It was called 'Compound System'. Charles Vone Ancelen has stated that, this system is a very suitable system to investors. After witnessing this system in Africa, W.T. Hudson returned to KGF and said, 'In KGF, it is not profitable as there is more number of migrated laborers living with families; it will not be profitable to introduce Compound System in KGF'.

After the introduction of the Mysore Mining Regulation in 1897 and then modified in 1906, the company started punishing the workers. The fines were for exceeding the level of offences by the workers. The Indian workers were getting 1 rupee fine for 1 anna size offence.

The Champion Mines had reached a depth of 8000 feet by 1936-37. The temperature at that depth was 131° F and sweat was flowing profusely from the worker's bodies. According to the rules of European countries, working under such hot condition was totally prohibited. The Chief Inspector of Mines has recorded in his annual report that 'working under such conditions is horrible and it is not good for the health of the workers. It is a challenge to the worker'. Mining engineer Crowle has written, 'KGF workers had to perform very tough jobs with such a constant danger on their backs. The temperature was more than a burning bulb. It was becoming

unbearable for the European Officers even to watch directly the Indians working under such conditions.

For this reason, the company had employed maistries through the contractors to oversee the work. The maistry posts were given to only those who had passed the training. They had to take extra care to prevent theft of gold by the workers. At the same time, very carefully they had to cooperate with the police. When the situation went out of hands, they were calling the Mysore State Reserved Police and Imperial Lancers Police from Bangalore. In addition to this, the companies had their own security guards. They were to keep watch in mines shaft, workshop, mills and bungalows of the officers. All these guards were Punjabis and they were provided with the best police equipments available during those days.

In 1897, the company, with the help of Mysore Govt., introduced a special act to prevent the pilferage of gold from the mines. This act empowered the company to identify the lower class and middle class households who had accumulated wealth beyond proportions and to confiscate that wealth. The thefts related to amalgamated gold (from mills), auriferous quartz or ore, candles used in tunnels and explosives were put under first category. When the company rules were violated, such violations were put under second category. The first category offences were handled by police whereas the second category was decided by the courts, sometimes the company officers were deciding by themselves (Janaki Nair, 1998)².

In the very first year of the introduction of this bill, 228 persons were punished. Gold worth 10,000 rupees was recovered in the same year (Table 1) (Janaki Nair, 1998)². The actual value of the stolen gold was running into lakhs and for this reason the company requested the Govt. to appoint more policemen to prevent the gold theft. In 1901, more number of police was deployed as a result of which 886 complaints were registered against 707 workers; and 584 workers were eventually punished and gold and other articles worth Rs.11297/- were recovered (Reports Mysore)³.

The police were spying on company workers and the common people in Bowringpet Taluk. They also spied on goldsmiths, rich people and gold merchants. Without any reason, complaints were filed against some people. They raided the houses of suspected people. All these misdeeds were protested in the editorial of 'Nada Kannada Patrike'. The police were suspecting all Indians except Britishers. The newspaper had condemned that such a rule was not there even in England (Nadegannadi, 1901)⁶.

In 1907, the police seized 2 £ of gold from the house of Venkataramaiah Shetty of Bethamanagala. He was paying a tax of Rs.150 per annum during those days. He was punished under the Mining Regulation Act with a fine of Rs.50 and 1 month simple imprisonment. Venkataramaiah Shetty appealed to the Mysore High Court, the court acquitted him saying, 'This person is already a rich person and the gold seized might be the inherited gold or it was earned before the Mining Regulation Act

Table 1. Complaints Registered against Workers and Citizens

Year	A	B	C	D (Rupee, Anna and Paisa)	Year	A	B	C	D (Rupee, Anna and Paisa)
1899	142	179	157	10936-2-7	1921	111	177	144	3231-0-10
1900	252	332	302	3548-7-4	1922	99	140	102	2548-5-6
1901	486	707	584	11297-10-10	1923	72	114	88	1101-11-0
1902	404	577	449	5535-15-1	1924	94	133	109	1532-11-6
1903	285	403	288	20640-15-1	1925	68	90	70	1642-12-0
1904	212	286	201	6010-15-11	1926	72	124	120	2534-0-6
1905	254	365	291	23659-13-2	1927	46	62	54	1506-2-0
1906	165	258	189	12786-15-8	1928	58	95	89	1777-0-0
1907	135	196	140	2159-10-10	1929	66	79	59	1741-1-0
1908	117	169	116	3825-5-7	1930	50	55	45	2190-15-0
1909	188	270	213	2630-14-4	1931	37	44	40	1518-8-0
1910	119	140	114	1679-1-0	1932	56	76	60	5780-2-6
1911	113	152	118	2266-6-1	1933	44	69	56	2432-14-11
1912	74	107	77	9784-4-3	1934	24	31	28	1259-14-0
1913	80	102	79	8122-8-8					
1914	87	109	97	3259-6-8	1935	43	67	57	1399-8-9
1915	99	124	108	2314-8-7	1936	53	89	60	946-11-0
1916	112	135	125	1603-2-4	1937	48	70	49	652-11-3
1917	74	104	84	1756-14-2	1938	19	30	19	121-11-6
1918	113	150	106	3053-14-3	1939	35	51	37	197-10-0
1919	104	183	128	3860-8-5	1940	23	31	28	1111-6-0
1920	99	120	80	6262-10-3	1945	50	96	76	2765-2-0
					1946	63	93	86	3999-2-0

A: Number of complaints; B: Complaints registered against workers; C: Number of complaints; proved against citizens D: Value of the property recovered.

Table 2. Complaints Proved against Workers^{4*} (Reports, 1898 – 1947)⁵

Year	A	B	C	Year	A	B	C	Year	A	B	C
1900	29	48	37	1914	23	31	29	1928	17	33	31
1901	35	66	55	1915	37	42	37	1929	27	28	28
1902	34	47	43	1916	29	31	29	1930	24	43	41
1903	24	30	18	1917	15	20	15	1931	15	27	23
1904	30	46	23	1918	13	14	10	1931	21	37	36
1905	27	40	26	1919	25	32	25	1933	20	27	25
1906	23	29	15	1920	12	15	25	1934	36	38	38
1907	33	38	29	1921	26	47	32	1935	23	28	27
1908	37	40	34	1922	14	15	12	1936	45	52	41
1909	37	41	29	1923	29	39	28	1937	30	41	39
1910	33	42	36	1924	43	63	57	1938	16	17	14
1911	48	51	50	1925	39	78	71	1939	51	53	53
1912	48	72	68	1926	32	54	53	1940	13	14	14
1913	38	45	40	1927	23	33	31				

A: Complaints, B: Number of people involved, C: Number of complaints proved.

List of Accidents (Reports, 1898 – 1947)⁵

Year	A	B	C	D	Year	A	B	C	D
1898	125	54	22	49	1921-22	173	14	25	134
1899	124	36	29	59	1922-23	175	19	19	137
1900	300	38	29	168	1923-24	204	26	21	157
1901-02	211	20	33	158	1924-25	205	23	16	166
1903-04	212	19	30	163	1925-26	207	16	14	177
1904-05	245	39	36	170	1926-27	192	16	19	157
1905-06	252	60	47	145	1927-28	212	17	15	180
1906-07	399	68	62	269	1929-30	230	19	18	193
1907-08	382	17	28	337	1931-32	195	22	10	163
1908-09	421	22	42	357	1932-33	213	22	18	173
1910-11	412	46	37	330	1933-34	275	26	13	236
1911-12	390	33	30	311	1935-36	274	19	24	231
1912-13	285	30	26	229	1936-37	240	23	17	200
1913-14	278	38	31	209	1937-38	218	21	18	179
1914-15	234	24	29	174	1939-40	149	08	09	132
1915-16	276	25	26	225	1940-41	246	14	08	224
1916-17	203	22	24	146	1942-43	234	13	08	213
1918-19	208	23	17	161	1943-44	252	05	05	242
1920-21	264	29	23	212	1946-47	169	04	2	163

A: Number of accidents, B: Accidents due to negligence, C: Accidents due to fatigue and D: Unavoidable accidents.

(Venkataramaiah Chetty vs. Govt. of Mysore, 1907)⁷. It was also declared in the same regulation act that all the goldsmiths should possess licenses. One person by name Subbachari who did not have license, who was produced in the court where he pleaded that, he did only silverware works and there is no need for possessing license'. The court acquitted him (Mysore records, 1898)⁸.

The Govt. was bothered about the basis on which the stolen gold has to be seized from the culprits by the company. It was difficult to differentiate between the stolen KGF gold and the gold already possessed by the persons. In 1903, the police seized 2 gold bars from Gopalaiah and subjected it to tests by the then Chief Geologist of Mysore W.F. Smeeth who opined that it was from KGF gold mines (Mysore CCR. 1903)⁹. The court had accepted it. The police had to confirm it to say that the gold seized, at least a part of it, was from KGF to decide that a person is guilty under Govt. rules. But, according to the company rules, the onus was on the accused person to disprove the charge.

The police had arrested a person by name Vadivelachari along with his gold in Bowringpet Railway Station. He argued in the court that the Bowringpet Railway Station was outside the District Sessions Judge's Jurisdiction. Actually, this place was at a distance of 11 km from KGF in British India. The Govt. had not yielded to the request of the company to bring it under the company's regulations. At last in

1918, the office of the Superintendent of Police was opened and this area was brought under its control. The police were questioning anybody who possessed 100 rupee notes. In case of any doubts, they were even bringing him to the police station.

The Mysore Govt. had listed 5 communities as criminal tribes i.e., Koracha, Vadda, Capemari, Ganthikalla and Handijogi. The number of Korachas and Vaddas was more in Kolar District. 8 Police Constables and 2 Jamadars were deployed to keep watch on them. When the tribals, Vaddas committed innumerable thefts in British Indian area which was outside KGF, the alerting bells were ringing in 1913 in KGF. The moment these people were identified in KGF, they were caught and sent out of KGF.

The theft of gold was coming down due to all such steps but the theft from other routes was going on. Although the European workforce was bringing out gold easily, they were not questioned by any security people near the shafts. In spite of the reduction in the theft of gold by workers, the gold business in the shops of Robertsonpet was going on as usual. Since lot of expenditure was involved in the court transactions due to theft cases, the company officers started taking decisions about the culprits caught in theft cases.

Goonda Act and Penalty

In 1906, the companies introduced a new rule under column 17 of Mysore Mines Act. The Superintendent of Police in KGF, under this Act / Rule, could send any one undesirable or indulging in undesirable acts, out of KGF area. To come back into KGF area they had to take police permission. The number of offences came down to some extent due to this Act. Those who went outside never returned back. In 1923-24, the Mining Chief Inspector gave a statement that the persons who try to spoil the relation between the company and the workers will also be booked under the same Act (Report, 1923-24)¹⁰.

In 1916, the same Act was enforced on Robertsonpet, Andersonpet and surrounding areas. Some thieves, who were hiding here and there, ran away to far off places. Even then, the theft of gold did not stop. When the company and police searches crossed the tolerable limits, the workers started speaking in favor of the workers. The MLA T.N. Ramachandra Rao and K.K. Ramegowda, in 1922 raised this issue in the assembly, saying 'Company and Police atrocities have crossed the limits. Some people have been excommunicated without any reason and questioned, what is the meaning of undesirable? (Mysore Legislative Council. 1922)¹¹.

K.C. Reddy, the first Chief Minister of Mysore after Independence (belonged to Kysamballi, 10 km from KGF), while speaking in the assembly about the rights of the people, said, 'The people have been affected by this Act. The company peons and butlers are troubling the innocent and honest women. The main intention of this Act

is to make the workers unorganized. This Act is in actuality, undesirable. This is a heinous and revengeful act against the workers'. But, all this did not bother the Govt. nominees. Some members argued that, 'KGF workers belong to lower sections of the society, they have vested interests. These workers are not the actual citizens of this area'. This attitude continued up to 1940. When the protest by the workers intensified, the company excommunicated 8 workers (Fortnightly, 1941)^{12,2}.

When the local workers came out of the mines and mills, the security guards were frisking the whole body. But they were not doing the same thing with the Europeans. This was almost like the apartheid treatment between whites and blacks in South Africa. The whites had a wide network to bring out gold from mills. These white thieves were settling this stolen gold to agents through the butlers, servants, tailors, barbers, bakers working in their bungalows. They were operating from outside KGF areas (Crown records)¹³. But, the company police were raiding the low class and middle class houses in KGF town and surrounding villages in case of any doubts.

The community activist P. Srinivasan, in 1943-44, exposed the nexus between KGF police, goldsmiths and Europeans. The police pretended to arrest some people to cover-up. A British Sanitary overseer by name Atkinson was caught red handed with articles in a house, but the company did not impose any fine on him (Janaki Nair, 1998)². One worker had died inside the mines due to the explosion and another worker was jailed for this. A statement by some other worker was the basis for jailing. It had become a common practice for the Britishers to abuse the workers with foul language. But they were never punished. Similarly, the Indian high caste were workers spitting fire on Adi-Dravida workers. The Tamil Adi-Dravida workers were not spared by anyone, in any way.

The company fined a maistry by name Venkatareddy with 50 rupees and one week rigorous punishment. The cage operators were fined for slight mistakes like upward or downward stoppages. If any deaths occurred due to the movement of the cages above the headgear or below, the operators were dismissed from service. In the beginning, all the cage operators were Europeans and their salaries were 15 times higher than that of Indians. To save the salaries, the company started replacing the Europeans with the Indian operators (Albert Memmi, 1990)¹⁴.

In spite of any type of severe punishment to the Indian workers, the number of accidents did not come down. The company was always thinking of profits, royalty and market prices of gold, etc. Besides, it was always planning to introduce new modes of punishing the workers. The workers were not getting any type of justice in Kolar District Sessions Court. The proceedings were always against them. On the other hand, the Britishers were mocking at the slow proceedings of the Courts and their Verdicts.

In 1905, J. Bardiliyan of Mysore complained that the local justice was interfering in the likely punishment to a thief who had stolen gold (Vanaja Rangaswami, 1981)¹⁵.

A mines officer has stated that, 'those courts are not dispensing the justice properly. In 1937, the private secretary of the Maharaja of Mysore, Charles Todehunter said, 'the reason for the increase in the number of accidents in the mines is not following the mining rules properly' and further 'the culprits should be punished more severely with more fines'. He stated 'If the complaints are taken to the mines inspector against the accused workers, he can understand the nature of the offence instead, if the matter is taken to the courts, the judges get confused as they do not know anything about mining, etc'.

First World War and its Effects

Only the Anglo Indians were pooled together to form the 'KGF Battalion' and were trained in the Rifle Range Grounds. This battalion had participated in the First World War. Along with them the Tamils of North Arcot, KGF and surrounding villages had fought the war. Most of the people who participated in the war did not return back. Those who returned were given suitable jobs in the mines. There was an atmosphere of fear of war in KGF and surrounding areas for more than four years. The locals, who returned back, were wearing the uniforms, caps and boots for the first time. Many of them had not seen good clothes earlier to that. After their returning from the war, there was a slight reduction in the practice of caste abuse/untouchability. Besides, there was a general fear among the public that they were the Govt. people. Many small scale factories had come up during and after the First and Second World Wars.

Britain and America had used the KGF Zone as a Preparatory Ground for the War. Both the Britishers and the locals were given training in KGF. K.S.Seetharaman has written in his book that, "thousands of workers and youths (above 16) from KGF were taken to cantonment in Bangalore for imparting training. Their group was called the 'Queen Victoria Old Madras Sappers and Miners'. Majority of these people were from North Arcot District. At the same time, several factories were commenced in Bangalore to manufacture war related equipments and other items. The war proved a catalyst to the Britishers for setting up many important factories in Bangalore. The Hindustan Aircraft Limited is also one of them. An airbase was started for the use of military camp. On 7th December 1941, Japan bombarded the Pearl Harbor in the Hawaii Group of Islands belonging to the USA situated in the East Pacific Ocean. After this, several wars related activities started in Bangalore which had emerged as an important war preparation zone.

The Britishers started training camps in Byatarayanahalli and Holagamadi Hillocks. The people started to look at the sky to watch the aeroplanes that were flying from KGF to Bangalore. If the enemy planes attacked at Bangalore or in any part of India, the locals were trained to fire tankers to knock down the enemy planes.

Airstrips were laid for the war planes to land near Bethamangala and Veerapura near Kolar. The military trucks on KGF roads and on surrounding hillocks were moving. The people were collecting the bullets and other ammunitions fired from guns and tanks. They were selling them for their copper and iron content. Two persons died and several injured in the process of hammering unexploded fire arms.

On the 14th June 1942, a Dakota Plane had crashed near Balliganahalli. Two pilots in the plane had jumped out and saved themselves. The very next day, a trainer plane had hit the Edgar Shaft and had collapsed near the Coromandal Railway Station like an orphan bird. But the pilots had escaped very narrowly. War Fund was collected all over the country. Out of the money collected from KGF, two 'Spit Fire' war planes were purchased and donated to the military. The contractors of KGF, public and merchants collected money and food grains and donated them to the Army.

The Britishers were haunted by the fear of KGF getting destroyed in the war. The mine documents were very carefully hidden insides the mines. The street lights in mines were switched off. Any one moving around with lamps was caught and punished. If the company vehicles had to move around invariably, they took care to blacken top half of the head lights so that the light was not emerging upwards. As a precautionary measure, 4 feet by 4 feet trenches were opened near schools, colonies, mines and offices. Sirens were blown when the war planes approached. Then, the people were hiding themselves in the trenches. The overseers of plane attacks were taking care of such moments. Although the KGF people did not participate directly in the war, they got the feel of the war.



Fig.35. KGF war memorial

The countries like Belgium, England, Holland, etc., had not made any preparations as they had not anticipated the war. Germany understood this point and hence started direct war on England. Pilotless Planes attacked London City. Shocked by this development, the citizens of London came to the streets. The then Prime Minister of England gave a call 'to pray in all the churches and temples for the success of England in the war and all should wear the 'V' (for Victory) badge in public places. Some mischievous youth in KGF had displayed skin badges with 'Tolvi' inscriptions (meaning Tol = Skin, VI = Victory) which meant defeat for the Britishers. After knowing the sarcasm in it, the Britishers caught hold of them and punished them.

The British Govt. imposed emergency and took away food grains and other commodities for war. All the stocks in KGF were emptied in 2 to 3 days. The prices shot up overnight. The rich people were able to purchase and survive whereas the poor had to survive by using tubers and greens. The Mysore Govt. opened some fair price shops to distribute grains. For the first time in 1942-43 periods, wheat, rava, maize and maida products were sold in public. As petrol, diesel and kerosene were diverted to the war efforts; the vehicles were run by using gas.

The used uniform, belt, boots and other items of the expired soldiers were sold in shops in Andersonpet and Robertsonpet. Sometimes, those cloths were blood stained. As the boots were needed for mining, the workers were purchasing them. The cloths, etc., of the soldiers who went from KGF and surrounding villages died in the war, were sent by postal parcels to the relatives. By seeing them, the relatives were driven to agony.

References

1. The Hindu, 31.7.2001.
2. Janki Nair (1998) Dangerous labor: Crime, work and punishment in Kolar Gold Fields from 1898-1946. Madras Institute of development studies. Madras.
3. Reports of Chief Inspectors of Mines. Mysore. pp.22-23.
4. *Annual reports of Chief Inspector of Mines. 1900-1940. Mysore.
5. Annual reports of Chief Inspector of Mines. 1898 – 1947. Mysore.
6. Nadegannadi (5th Nov, 1901) Native News Paper.
7. Venkataramaiah Chetty vs. Govt. of Mysore (1907) CCR, p.231.
8. Subbachari vs. Govt. of Mysore (1898) Crown representative records. p.141.
9. Gopaliah vs Govt. of Mysore (1903) CCR, 8 Mys.p.133.
10. Report of the Chief Inspector of Mines. Mysore. 1923-24. p. 26.
11. Proceedings of Mysore Legislative Council. October, 1922. p.29.
12. Fortnightly ending January 15, 1941. CRR. KSA: Interview with Shourie Dass, January 5th, 1995 and Devenbu, January 4th, 1995; Janaki Nair (1998) Miners and Mill hands-work, culture and politics in princely Mysore.
13. Secret notes on Mysore. (September, 1903) Resident of Mysore. Crown representative records. KSA.
14. Albert Memmi, (1990) The Colonizer and the Colonized, Howard Greenfield London: Earth-scan Pub., p.146. (There were occasional words of praise for the KGF minors who 'has qualities which

make him cheap at the price' in Pringle, 'Efficiency and Economy in the Underground Department', p.136).

15. Vanaja Rangaswami (1981), the story of integration: A new interpretation in the context of the Democratic movements in the Princely States of Mysore, Travancore and Cochin between 1900-1947. Manohar pub. Delhi. p.2.

Chapter 12

Conclusion

The history of Kolar Gold Mines represents the advent of modern gold mining availing the experience and knowledge of British mining engineers and their European associates with labor force from the most oppressed section of society the Dalits and other backward class.

137 years (to this year 2017) ago there were no mine colonies. All the residential areas came up after the commencement of the mining. The East India Company had commenced modern gold mining in India in 1880 at KGF. John Taylor employed British, Italian, German and other European Engineers and Technicians to attend to mine administration and supervision.

The important point to be observed is the interesting growth of the Europeans and the migrants from adjacent states who settled separately in zones far apart. The administration (rulers) was from the European countries whereas the working class (ruled) comprised the native dalits and backward classes who were oppressed. The Europeans were very much aware of the fact that one day or the other they had to leave this country and in the meantime they wanted to plunder gold as much as they could and they held the locals in their firm grip with stringent laws and regulations. This sort of exploitation continued till India gained Independence from the British rule.

During 1930s and 1940s, when India was fighting for freedom against Britishers, the workers and the union leaders were organizing protest rallies to get additional benefits, and by their united action they could succeed to some extent. It is a paradox that, till that stage, neither the company nor the government came forward to commence schools for the children of workers. Only some philanthropic contractors and Christian organisations started primary schools in some houses and Churches. By 1940, many primary schools were started in KGF area. Later, English medium high schools were also started. In such schools, mainly the Anglo Indian teachers dedicated themselves for the purpose of teaching. These schools progressed from here onwards, without looking back, to become one of the best and disciplined schools in the State. The

School of Mines commenced in 1955 was only the second Mining College in the country (after School of Mines at Dhanbad amidst Coal Mines). The First Grade College, commenced in 1962, was one of the few good colleges in the State. The students graduating from the First Grade College have joined State, Central Govt. services and also major companies of the country. The mining engineers from the School of Mines are working in major mines of the country. Experienced engineers and technicians from KGF mines later joined other companies of the world. That's why the KGF mines are called 'Mother of Mines'. Most of the workers who worked in the major companies of Bangalore during the World Wars were the workers or their children from the KGF.

KGF was the first cosmopolitan town of the State much before Bangalore got the cosmopolitan label. It may not be an exaggeration to state that the KGF was in some way responsible for the growth and development of Bangalore. Also, KGF was responsible for the industrial growth of Mysore State and later of the rest of the Karnataka. However, it is an irony that the growth of KGF remained static broadly it can be stated that there was not much of a large scale socio-economic development in KGF during the colonial and post-colonial period. But, the children of the workers of KGF, because of the opportunity of availing education for the first time and also for their progenies, are able to come out of the clutches of the archaic social system and carving out a place of pride for themselves in the society on equal terms. Nevertheless, the transformation has been uneven as it has not reached the dalits living in clusters of huts. It is the gross insufficiency of the human civilization and injustice that such communities are divergent to the mainstream of the society. However, the realization has dawned that education is power and is available to every child of the society without any barrier or discrimination.

For the growth and prosperity of the KGF, it is essential to have all inclusive and sustainable development and also to encourage the unemployed to develop skills so as to avail widening spheres of employment. It is necessary to explore the possibilities of opening abandoned gold mines.

The farmers of Kolar District reeling under perennial droughts have switched over from traditional agriculture to horticulture, floriculture and dairying. Nearly 40% of the vegetables exported from Karnataka come from Kolar District alone. Presently there is a proposal for the diversion of the Yettinahole River water to the district and also a plan to fill the tanks of Kolar district by the sewage treatment water of Bangalore.

Presently the largest tomato market of India is in Kolar. It has become a common scene every year when a suitable supporting price for tomato is not there in the market the farmers in desperation leave the produce in the fields or dump it on the roads as a protest. But, unfortunately nobody is thinking of rectifying all these problems. Similar to Gujarat, here also there is Amul milk dairy, chocolate factory, tomato ketchup

factory, potato chips factory, cold storage for vegetables and flowers have to be started.

The diary farming started by M.V. Krishnappa has brought some relief to the district and it is the second largest producer of milk in Karnataka and third largest producer in India. Channaiah was responsible for electrification of most of the villages in Kolar District. The BEML factory in KGF has survived because of the support by Railways and Defense departments. But, unfortunately the BEML was trifurcated and the other two units were shifted to Mysore and Bangalore respectively.

Future Course

As Stated in earlier chapters, gold still occurs in KGF with grades of 3 to 5 gms/tonne. After closing mines, an estimate was made that nearly 110.53 million tonnes of auriferous ore with an average of 4gm/tonne is available in Nandidroog, Chigurugunta, Mallapanakonda, Bisanattam, Yepamana and Mysore Mines. Some zones have higher grades also. An estimate says that at 3 gms/tonne cut off grade of nearly 7.6 million tonnes of ore is available in Champion Reef alone. Gold in parallel reefs and other smaller reefs is not taken into cognizance at all by the company.

The Chigaragunta Mines are at a distance of 25 km towards south of KGF. This mine can be started anytime as the gold here is going to be supportive with good grades. Nearly 300 to 500 workers can be employed if mining starts here. In China and Australia, they start mining with 2 gms/tonne of gold. Deep mines (KGF's main lodes) apart from the Chigaragunta, Yepamana, Ramagiri and Bisanattam Mines can be worked profitably. This requires suitable technology coupled with sound management.

Nearly 50 million tonnes of tailings were dumped over 12 decades of gold mining in KGF. In the beginning 100% recovery of gold was not there due to lack of proper technological knowhow, as a result of which nearly 10% of gold is remaining in the dumps. Gold content is on an average of 0.72 gms/tonne in the tailings. This is not an economically supportive grade at the present knowhow. By treating this ore, the problems already faced by KGF and surrounding areas will be aggravated due to air, water pollution, etc. At one point of time, KGF was a profit making company and it had a disciplined workforce in the entire country.

But, its fortune took a downward curve due to the step-motherly treatment of the Govt., negligence due to its being a border district, and social inequality due to the factor that all workers are Dalits/Tamils and due to local politics. All these factors contributed to the economic and social degeneration of workers of the KGF. Also, all the people's representatives from here since Independence belong to Republican Party of India, Communist Party of India, AIDMK, etc., and their being not part of any national party, no advantage could be taken of by KGF Mines from the State or Central Governments any time of its history.

Copious water has accumulated in the 13,230 feet deep mines and also in the underground dams. Water started filling up the excavated tunnels after closing all mines and switching off the pumps. An estimate puts the volume of water that has accumulated at nearly 0.25 million cubic meters (0.25 TMC). This water is no doubt unfit for drinking purpose, but can be utilized for agricultural purpose without any problem. Although some preliminary attempts are made in this regard, no major project has been commenced by the Govt. The District administration and the local people have to exert pressure on the Govt. to implement this project. In many countries sewage water has been treated and used for even drinking purpose. Effort should be made to utilize this water accumulated in the underground mines for its utilization

Today's KGF

Whenever I go to my village or to Kolar, my ears straighten when I hear the word KGF. My grandfather Buddappa and his brother Pattappa had worked in the Bisanattam gold mines in those days for a very short period without any facilities and my father used to narrate those things to me. Whenever there were rock bursts in mines, our village (1 km from Bisanattam) experienced vibrations. The ground was shaking and everything in the houses like utensils, plates, tumblers were also shaking and falling. The wives of the miners were praying to Gods by touching their holy Mangala Sutra to their eyes, to save their respective husbands who were working inside the mines.

The giant wheels on the headgears which could be seen from a distance, were working day and night to transport thousands of workers from inside to outside and also outside to inside. The trains/trams from the mines were transporting ore to the mills. Exactly at 7 am, 3 pm and 11 pm, thousands of workers dressed in yellow shirts and blue pants, boots and hats, were going for duty on their bicycles like line of ants along the roads. The workers who were returning from work were smeared with grey colored rock powder in the mines and those going for work were looking fresh. The entire mining community was moving like a dynamic system.

Now all that is over, the wheels on the headgears are no longer rotating. At some places, the wheels are missing. The machinery and equipments all over the Mines town have become silent and are rusting. The roads which were buzzing once upon a time have lost the rhythm and are abandoned. The hourly alarm sound of siren is not heard now. The workers who lost their work look out for such sirens once again in their life time.

The Gulmohar trees aligned on both sides of the roads are no longer smiling. They remain still, looking at a few people traversing under them. But, the protective walls around the shafts are still there and are guarding the mines loyally. The palatial

bungalows of the whites are orphaned now. The wild lantana brushes grown all around the bungalows have been guarding the bungalows – not allowing anybody inside. The locals act as guides occasionally to the visitors who come to see the mines and show them as ‘this is John Taylor’s bungalow, his son’s bungalow, Smeeth’s bungalow, Suvarna Bhavan, Britishers’ playground, Golf grounds, Oorgaum club, skating ring, Mining hospital, etc....



Fig.36. One of the Britishers Bungalow

The young men and women from those houses start before dawn, to catch the Swarna (KGF - Bangalore) train, to work in different offices, companies and come back by 9 pm in the late evening by the same train. The old men and women sit in front of the mining houses. When someone tries to look into their houses they somehow stop them. They do not want to show their helplessness. Whenever a conversation is picked up with middle aged ex-workers, after a few general talks, they show their anger on State and Central Governments and say further, ‘the mines were closed mainly because of corrupt officers. All of them made money when the mines were active. The Govt. paid those lakhs of rupees when the mines were closed. But, we the workers never get paid properly any time. We did not get anything when the mines were closed. Is there such cheating anywhere else on the earth?’ But, everybody says confidently that there is gold still in the mines. According to an estimate, still 150 to 200 tonnes of gold are there in the mines, having nearly 3 to 5 gms/tonne.

A hand bill with an obituary note as cited below was circulated by the grieving workers and admirers of the Kolar Gold Mines exactly 7 years after closing the Mines, to awaken union leaders, the bureaucrats and politicians to rejuvenate the Kolar Gold Mines in the interest of unemployed mining workers and national economy.

Name: Bharath Gold Mines Limited, Kolar Gold Fields. Karnataka, India. Expired on 28th Feb, 2001

It is already 7 years since you left for heavenly abode. We are spending every day in your memory. We are suffering helplessly without job, salary; without rehabilitation package; without retirement benefits; without any basic facilities in our mining colonies, our life has become a nightmare. The State or the Central Govt. who was responsible for your death is not showing any mercy on us. Some political leaders saying that we would uplift you, were distributing free rice, sarees, etc. there by reducing us to beggars and insulting us indirectly. The Union Leaders who were saying sweet words of making our lives golden have disappeared today.

Even now there are some thieves who steal gold from your tombs. Their gangs are paying a part of the loot to their leaders. When you were alive, you made their lives golden. You showered gold on those who nurtured you, thereby earned the recognition of the world. Even now, you are remembered when we see the dazzle and sparkle of the beautiful golden ornaments on the nose, ear and necks of the damsels. How can we and our generation forget you? Unable to forget you and to bear the grief that 60 workers have died. Some have committed suicide unable to live and at the same time unable to die, always remembering you, spending painful existence, always immersed in your golden memory.

- 3800 Grieving Workers, Families, Admirers and Others

This sums up the present frustration of the unemployed workers.



Fig.37. An abandoned shaft as a reminder of 121 years golden saga (www.dailymail.co.uk)

Places of Gold Occurrences in Karnataka

Bijapur :	Iklahala
Tumkur:	Ajjanahalli, Javanahalli and Bellara
Hassan:	Haranaahalli, Kempinkote and Gollahalli
Bellary:	Chigiteri, Bavihalli and Konganahosur
Shimoga:	Plavanahalli, Honnehatti and Honnali
Mysore:	Ambale, Olegere, Porsedyke and Koudalli
Gulbarga:	Mookanagavi, Hegganadoddi, Godigiri, Naganuru and Mangluru
Mandya:	Honnebetta, Halthibetta, Kalinganahalli, Bellibetta and Hunjanakere
Gadag:	Kabliyatatti, Attikatti, Mysore mine, Sangli and Hosur mine.
Chikmaglur:	Jalagananagundi, Sidharahalli, Nandi, Devarakallu and Ajjampura.
Raichur:	Hatti, Kadoni, Wandali, Chincherga, Uti, Udbal, Sanbal, Maski, Ramaldinni, Honnakuni and Hira-Buddini
Chitradurga:	Halekallugudda, Honne-Maradi, Gonuru, Bodi-Maradi, Nelabavigudda, Malebennuru and Dindavara
Haveri:	Chinmalgund.

Some Historical Events

- 4000 BC : Prehistoric man noticing gold nuggets in stream beds.
- 2000 BC : Realization of the occurrence of gold in Quartz Veins.
- 300-650 BC : Golden age; Emperor Asoka and Maurya Dynasty.
- 1500-1700 AD : Gold mining was ignored during this period.
- 1832 AD : Gold was sighted in 'Ningtu' River of Manipur.
- 1833 AD : Newbolt mentioned about Gadag Gold Mines.
- 1834 AD : Princes, J. mentioned about Malabar Gold Mines.
- 1851 AD : Founding of Geological Survey of India (GSI) in Kolkata
- 1874 AD : Lt. John Warren proposed about KGF.
- 1979 AD : Michael Lavelle obtained permission from Mysore Govt. to extract Coal and Gold from some parts of KGF and commencement of Oorgaum Mining Company.
- 1880 AD : Commencement of mining in KGF by M/s. John Taylor & Co.
- 1885 AD : Capt. Plummer discovered the world famous Champion Gold Lode.
- 1887 AD : Modern Hutti Gold Mines restarted.
- 1902 AD : Electricity brought from Cauvery Valley (Shivanasamudram) to KGF.
- 1914 AD : Many Gold Mines in the world were stopped due to 1st World War.
- 1931 AD : Increase in Gold price due to abolition of Gold Control.
- 1956 AD : Mysore Govt. took over KGF after Nationalization of the Mines.
- 1962 AD : Govt. of India took over KGF Mines.
- 1968 AD : Central Govt. fixed the Gold price of KGF.
- 1972 AD : Renamed the KGF Mines as Bharath Gold Mines Ltd. (BGML).
- 1979 AD : Mining Leases granted to Private Companies.
- 1998 AD : Simplified rules were introduced for importing Gold.
- 2001 AD : KGF Gold Mines were finally closed.

Some Special Book References

1. Gold in India by B.P.Radhakrishna and L.C.Curtis. Geological Society of India. Bangalore. (1999).
2. Gold resources of India. Geological Survey of India (GSI). Series A, Economic geology. no. 38, part-1: text by M.Ziauddin and S.Narayanaswamy (1974).
3. Ancient and post medieval mining sites in the Khetri copper belt and Kolar Gold Fields. India-Lynn willies bulletin. peak District Mines. Historical society Vol.11, Nov 6. winter 1992.
4. Oldways of mining in the Kolar Gold Fields by P.T. Eraddock. Gold bulletin. 1991.
5. Historical notes on the Kolar Gold Fields by T.Williams. KGF Mining and Metallurgical Society, bulletin.
6. Report prepared in 1985 by Sri.K.S.R.Charry. former Secretary. Dept. of Mines. Govt. of India.
7. Gold exploration and development. India, United Nations Inter-regional seminar volume. Bangalore -1985.
8. Kolar District Gazetteer (1968). Vidhana -Veedhi. Bangalore -1.
9. Review of literature on effects of breacking dusts with special reference to silicosis (1937) by Harrington. USA Govt. Washington.
10. Centenary souvenir 1980. BGML. KGF.
11. K.GF Mining journals (consulted in BGML library).
12. K.GF Mining magazines (consulted in BGML library).
13. Anon. 1971. GSI News Vol-2, no-3 March 1921.
14. Gold resources of India. GSI bulletin no. 38, 1974.
15. Treatment of gold bearing quartz of the KGF by R.H.Kendal and A.F.HosKing trans. of the Institute of Mining and Metal. 1925.
16. Kavnaugh, P.M. (1968) have 6000 years of Gold Mining Exhausted the world's Gold Reserves? Can. Min. Metal. Bull. vol.61, p-672.
17. King, W.(1878) Note on the Progress of the Gold Industry in the Wynad. Nilgiri District. Madras Presidency, Rec. G.S.I, vol.11.
18. Satya Prakash Mishra. (1987) Rock Edicts of Ashoka and Golz - Gold Mineralization. Rec.GSI, 113 (7).
19. Williams, T. (1936) Historical Notes on the Kolar Gold Field. Min. Metal. Soc. Vol. VIII, part II. Bull No.41-44.
20. Seetharaman, K.S (1989) Kolar Thanagavail Varalaru.
21. Deshpande. Report on the Gold Mining Industry.
22. Kolar Gold Miners speak (pamphlet) Delegates from the KGF in 22nd session AIIUC. 10th Feb, 1947. Calcutta.

23. Ketta Pengal Kummi. Ladykalpatham (Tamil).
24. Srinivasan, M.A (1930) Labour in India.
25. Jodikalpatham (Tamil).
26. Jackspalding mine ventilation with conditioned Air. KGF. Bulletins.
27. Simmons 'The case of KGF' Srinivasan. Labor in India.
28. Hudson, J.T. 'Some Features of South African Mining Practice' KGF Mining and Metallurgical Society. Quarterly bulletin (KGF Bulletins).
29. For instance Mukharjee, Crime and Criminals and also Janaki Nair, 'Prohibited Marriage: State protection and Child Wife in the Mysore. 1894-1930'.
30. The words of J.A.Pringle, '...the Indian can be... and is...fined a rupee when anna would fit his earnings and his offence much better... efficiency and Economy in the Underground Department' KGF Bulletins.
31. Anthony Caplan. Heat Exhaustion in KGF. KGF Bulletin.
32. A Jumper coolly moving in underground without a light fell from the 340feet level to 540feet and died instantly. Reports of Chief Inspectors of Mysore. 1899.
33. Foreign Department Confidential. B Internal Branch, section A 1905. IPC of Mysore. 17th January, 1908 (emphasis added).
34. Janaki Nair. (1998) Miners and Mill hands-work, culture and politics in princely Mysore. Sage pub., New Delhi. 1998.
35. Gold the Indian scene by B.P.Radhakrishna and L.C.Curtis. (1991) Geological society of India. Bangalore.
36. Prakash, H.S.M (2001): Geology, Geochemistry and Controls of Gold mineralization in Bellara-Ajjanahalli-Neralagudda Golden Triangle, Chitradurga Schist Belt, Karnataka. PhD Thesis. Bangalore University.
37. Kolar Gold Field: (unfolding the untold). Dr. S. Srikumar, Patridge Publications, London.
38. Rajara Loha, Lohagala Raja (Kannada). Anantharamu, T.R. Navakarnataka Publications, 1999, Bangalore.



Dr. M. Venkataswamy was born in a village called Bytarayanahally near Kolar Gold Fields (KGF). He did his B.Sc from KGF, FGC and M.Sc from Bangalore University. He is an established popular writer in Kannada and has published more than 25 books on various subjects like poetry, novels, travelogue, popular science and research. The book '*Kolara Chinnada Ganigalu*' in Kannada fetched him D.Lit., from Hampi Kannada University and this book is now translated to English. His books were published in Navakarnataka, Kannada Pusthaka Pradhikara, Kannada Sahitya Parishath, Geethanjali and others.

He is presently a faculty member in JSSTICE (UPSC/KAS coaching centre) in JSS College, Bangalore and also used to teach newly recruited Geologists in GSI TI for National Geochemical Mapping. He writes columns in leading Kannada papers regularly and is an editorial committee member for the bilingual magazine '*Parisara Vahini*' published by Karnataka Pollution Control Board.

Kolar Gold Mines (A short history of a gold mining and its socio-economic impact) covers many topics like historical, cultural and socio-economics of modern mining and also takes you back to beyond 2000 years mining history. He retired as Dy Director General from GSI after serving 31 years.



Dr. H.S.M. Prakash obtained his M.Sc (Geology) 1st class with three gold medals from Bangalore university in 1978 and was awarded Ph.D. in 2002. He joined Geological Survey of India (GSI) and worked in Bhopal, Hyderabad, Bangalore and Shillong. He carried out mineral investigations for phosphorite, gold base metals, diamonds, molybdenum, rare elements etc. He worked as a faculty member in GSI training institute to train newly recruited geologists and also as Director (Technical) in Ministry of Mines, New Delhi.

Dr. Prakash has translated and published interesting story books from NER such as *Bhoomi Geethegalu*, *Ee Bettagale Namma Manegalu*, *Eesanya Bharathada Eithiya mathu Adhunika Kathegalu*. Thus, both as a geologist and as a translator/writer he has contributed to the Geology of the country in general and Kannada literature in particular (totaling 26 books) besides working in social and cultural fields.

He has received *Abhijatha Srujana Prashasthi*, given by *Dhruvatharegalu Trust*, Bangalore and *Aryabhata Award – 2012* for his contribution to literature. Recently, he received the Karnataka State Sahitya Academy award in 2014.